

COLUMBIA UNIVERSITY BULLETIN



THE JOSEPH L. MAILMAN

SCHOOL OF PUBLIC HEALTH



1999–2001



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COLUMBIA UNIVERSITY BULLETIN

THE JOSEPH L. MAILMAN
SCHOOL OF PUBLIC HEALTH

PROGRAMS AND APPLICATION, 1959-2001



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ACADEMIC CALENDAR: 1999–2001

The following Academic Calendar was correct and complete as of the time of publication; however, the University reserves the right to revise or amend it, in whole or in part, at any time. Information on the current status of the Academic Calendar for the School of Public Health may be obtained from the Office of Student Services, (212) 305-3927.

Major Religious Holidays

Some of the major holidays are shown below. The Jewish and Islamic holy days begin at sundown of the preceding day. The exact dates for the Islamic holy days may vary by one or two days from the estimated dates given below:

1999–2000

Rosh Hashanah Saturday, Sunday, September 11, 12
Yom Kippur Monday, September 20
First days of Succoth Saturday, Sunday, September 25, 26
Concluding days of Succoth Saturday, Sunday, October 2, 3
Id al Fitr Saturday, January 8
Lunar New Year Saturday, February 5
Id al Adha Thursday, March 16
First days of Passover Thursday, Friday, April 20, 21
Good Friday Friday, April 21
Concluding days of Passover Wednesday, Thursday, April 26, 27
Shavuoth Friday, Saturday, June 9, 10

2000–2001

Rosh Hashanah Saturday, Sunday, September 30, October 1
Yom Kippur Monday, October 9
First days of Succoth Saturday, Sunday, October 14, 15
Concluding days of Succoth Saturday, Sunday, October 21, 22
Id al Fitr Wednesday, December 27
Lunar New Year Wednesday, January 24
Id al Adha Tuesday, March 6
First days of Passover Sunday, Monday, April 8, 9
Good Friday Friday, April 13
Concluding days of Passover Saturday, Sunday, April 14, 15
Shavuoth Monday, Tuesday, May 28, 29

FALL TERM 1999

August

2 Monday. Last day to file application, or renewal, or change of name for October degrees. **NO EXCEPTIONS.**
31 Tuesday. First day of Registration for fall term.

September

1–2 Wednesday–Thursday. Registration continues.
1 Wednesday. Orientation.
7 Tuesday. Classes begin. First day to change programs.
14 Tuesday. Last day to change programs. **NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.**

October

20 Wednesday. Award of October degrees.

November

2 Tuesday. Election Day. **No classes.**
18 Thursday. Last day to drop individual courses or change grading option.
22–24 Monday–Wednesday. Continuing students register for spring term.
25–28 Thursday–Sunday. **Thanksgiving holidays.**

December

1 Wednesday. Last day to file application, or renewal, or change of name for February degrees. **NO EXCEPTIONS.**
13 Monday. Last day of classes.
15–22 Wednesday–Wednesday. Examination period. Term ends.
23 Thursday, to January 17, Monday. **Winter holidays.**

SPRING TERM 2000

January

12–13 Wednesday–Thursday. Registration for spring term.
17 Monday. Martin Luther King Day. **No classes.**
18 Tuesday. Classes begin. First day to change programs.
25 Tuesday. Last day to change programs. **NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.**

February

- 1** Tuesday. Last day to file application, or renewal, or change of name for May degrees. **NO EXCEPTIONS.**
- 9** Wednesday. Award of February degrees.
- 21** Monday. Presidents' Day. **No classes.**

March

- 13–17** Monday–Friday. **Spring holidays.**
- 23** Thursday. Last day to drop individual courses or change grading option.

May

- 1** Monday. Last day of classes.
- 5–12** Friday–Friday. Examination period. Term ends.

Commencement

- 17** Wednesday. Conferring of degrees.

SUMMER SESSION 2000**May**

- 18–19** Thursday–Friday. Registration.
- 22** Monday. Classes begin. First day to change programs.
- 26** Friday. Last day to change programs. **NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.**
- 29** Monday. Memorial Day. **No classes.**

June

- 16** Friday. Last day to drop individual courses or change grading option in first six-week session.
- 21–22** Wednesday–Thursday. Registration for the second six-week session.
- 30** Friday. First six-week session ends.

July

- 3** Monday. Second six-week session begins. First day to change programs.
- 4** Tuesday. Independence Day. **No classes.**
- 12** Wednesday. Last day to change programs. **NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.**
- 26** Wednesday. Last day to drop individual courses or change grading option.

August

- 1** Tuesday. Last day to file application, or renewal, or change of name for October degrees. **NO EXCEPTIONS.**
- 11** Friday. Last day of classes.

FALL TERM 2000**August**

- 29–31** Tuesday–Thursday. Registration for the fall term.
- 30** Wednesday. Orientation.

September

- 4** Monday. Labor Day. **No classes.**

- 5** Tuesday. Classes begin. First day to change programs.

- 12** Tuesday. Last day to change programs. **NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.**

October

- 18** Wednesday. Award of October degrees.

November

- 7** Tuesday. Election Day. **No classes.**
- 16** Thursday. Last day to drop individual courses or change grading option.
- TBA** Continuing students register for spring term.
- 23–26** Thursday–Sunday. **Thanksgiving holidays.**

December

- 1** Friday. Last day to file application, or renewal, or change of name for February degrees. **NO EXCEPTIONS.**
- 11** Monday. Last day of classes.
- 15–22** Friday–Friday. Examination period. Term ends.
- 23** Saturday, to January 15, Monday. **Winter holidays.**

SPRING TERM 2001**January**

- 10–11** Wednesday–Thursday. Registration for spring term.
- 15** Monday. Martin Luther King Day. **No classes.**
- 16** Tuesday. Classes begin. First day to change programs.
- 23** Tuesday. Last day to change programs. **NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.**

February

- 1** Thursday. Last day to file application, or renewal, or change of name for May degrees. **NO EXCEPTIONS.**
- 14** Wednesday. Award of February degrees.
- 19** Monday. Presidents' Day. **No classes.**

March

- 12–16** Monday–Friday. **Spring holidays.**
- 22** Thursday. Last day to drop individual courses or change grading option.

April

- 30** Monday. Last day of classes.

May

- 4–11** Friday–Friday. Examination period. Term ends.

Commencement

- 16** Wednesday. Conferring of degrees.

SUMMER SESSION 2001**May**

- 17–18** Thursday–Friday. Registration.
- 21** Monday. Classes begin for first six-week session.
- 28** Monday. Memorial Day. **No classes.**

A LETTER FROM THE DEAN

The Joseph L. Mailman School of Public Health has just completed the celebration of its seventy-fifth anniversary year, a year which included not only an extraordinary gift to the School from the Mailman Family Foundation; but also receipt of the largest foundation grant in the University's history; as well as progress on relocating all of the School's many teaching and research offices to a single Health Sciences campus building, giving the School a major "home" in the University and within the Columbia Presbyterian Center.

These are exciting developments—developments matched by growth in our academic program offerings; in our funded research activities; and in an expansion of our service delivery programs, a special and in some cases unique contribution of our School.

Our faculty, together with our students and staff, focus on addressing the major, and ever more complex, health issues of the day, including AIDS; cancer; health care organization; environmental contamination; teen pregnancy; and the financing of health care for the rapidly increasing number of uninsured people, mostly the working poor and now totaling some forty-four million people. We also work on significant global concerns: emerging infections, population growth, international health systems, AIDS and STDs, refugee health, women's reproductive health, including family planning and maternal mortality. Many of our faculty are leading experts on these vital issues.

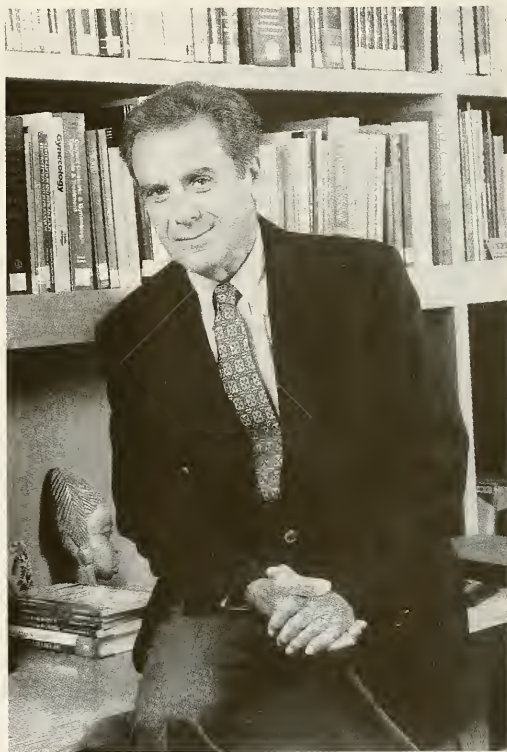
We believe you will find exceptional opportunities at our School to build your knowledge and skills in whatever direction you choose—policy, management, research, education, program development—and with a focus on the particular populations, and place in the life span, that you want to serve within this broad field of public health. Whether your interest is at the local level or in the area of global health, you will find our programs, faculty, and the many resources available to you—through this major medical center complex, the University, New York City, and our faculty's many affiliations—will offer unmatched opportunities to learn and test your learning through practical application.

More than ever, public health needs well-trained professionals. We welcome your interest in our programs and hope you will accept our invitation to explore your career options here.

With best wishes,



Allan Rosenfield, M.D.
Dean



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President of the University

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Professors Emeriti

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Jack Elinson, B.S., M.A., Ph.D.
Professor Emeritus of Public Health (Sociomedical Sciences)

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Reuben S. Carpenter Professor Emeritus of Pediatrics and Public Health (Tropical Medicine)

Sidney Katz, M.D.
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Lucie S. Kelly, R.N., Ph.D.
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Professor Emerita of Public Health (Epidemiology) (in Psychiatry) and (in the Sergievsky Center)

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Professor Emeritus of Public Health Practice

Joe D. Wray, B.A., M.D., M.P.H.
Professor Emeritus of Clinical Public Health (Population and Family Health)

HISTORY AND ORGANIZATION

For three-quarters of a century, The Joseph L. Mailman School of Public Health of Columbia University, one of the first in the nation, has been on the cutting edge of public health education. It has assumed leadership in disease prevention and, with equal emphasis, in the active promotion of health for all. It is one of twenty-eight schools of public health in the United States accredited by the Council on Education in Public Health.

The School was founded in 1919 by the legacy of Joseph R. DeLamar and opened its doors two years later as the DeLamar Institute of Public Health within the Columbia University College of Physicians & Surgeons. Since the late 1920s, the School has been located in the Columbia Presbyterian Center, one of the country's largest and most renowned academic medical centers. In 1945, the Institute became the School of Public Health and the first public health school to offer a master's degree in hospital administration. In 1998 the Mailman Family Foundation endowed the School with the largest gift ever given to a school of public health. In acknowledgment, the School was renamed in memory of New York City philanthropist Joseph Lawrence Mailman.

Throughout its history, the School has maintained close contact with its sister schools on the Columbia University Health Sciences campus, including the College of Physicians & Surgeons, the School of Dental and Oral Surgery, and the School of Nursing. The School also collaborates with New York Presbyterian Hospital, the New York State Psychiatric Institute, and with other Columbia-affiliated hospitals, centers, and institutes.

The School is situated in a city where life and health are often endangered by drug, alcohol, and tobacco abuse, HIV infection, malnutrition, child abuse, homelessness, too-early and too-frequent pregnancies, inadequate primary health care, serious health care financing issues, and a hospital financial crisis—an alarming array of adverse conditions. The extent of New York City's social and health problems, however, offers the School a unique opportunity—a testing ground—for formulating policy and carrying out quality research while answering local needs and modeling solutions for similar situations at sites across the country and around the globe.

Organization of the School

The academic organization of the Mailman School of Public Health is constantly reviewed for its level of responsiveness to changing public health priorities. At present the School has six Divisions. Along with their primary function of teaching, every Division also

engages in research and service. Students work under faculty guidance on many of the School's projects in order to gain firsthand experience in the design and execution of research protocols and service programming.

BIostatISTICS

Biostatistics provides the basic tools for the collection, analysis, and presentation of data in all areas of public health. Biostatistical techniques are used in measuring effectiveness of preventive, diagnostic, and treatment activities, and in public health analysis. One of the first in the nation, the Division of Biostatistics at the School was established in 1940.

ENVIRONMENTAL HEALTH SCIENCES

The School has long been in the vanguard of institutions responding to the impact of industrialization's environmental contaminants, toxic chemicals, carcinogens, and occupational hazards on the health of our environment and human populations. Early in its history, the School created a Division of Environmental Health and Occupational Medicine (changed in 1970 to the Division of Environmental Sciences and currently the Division of Environmental Health Sciences).

EPIDEMIOLOGY

One of the mainstays of public health, Epidemiology studies the occurrence and distribution of disease and other health-related conditions in populations. Epidemiology's principles and methods provide knowledge of the natural history of diseases, are the foundation for preventive health interventions, and form the basis for rational decisions concerning clinical and medical practice and public health policy.

HEALTH POLICY AND MANAGEMENT

As health care facilities grew in type and complexity, the School responded by developing the Institute of Administrative Medicine. In the 1970s the Institute became the Division of Health Administration, offering programs in public health practice, hospital administration, policy formulation, and administrative medicine. Today it is known as the Division of Health Policy and Management, reflecting the growth of governmental policies and a greater demand for managerial and entrepreneurial skills.

POPULATION AND FAMILY HEALTH

The Division of Population and Family Health was created in 1975 to address the high rate of population growth in many parts of the developing world, and to study the health and welfare of women, infants, and young children in the United States, as well as Asia, Africa, and Latin America. The Division provides direct services,

designs and tests innovative methods of service delivery, trains public health workers, conducts basic and applied research, and contributes to the development of relevant public policy.

SOCIOMEDICAL SCIENCES

With the establishment in 1968 of the first formal division of behavioral sciences in a public health school, the School took another pioneering step for the public health field. The Division of Sociomedical Sciences focuses on social and behavioral factors affecting health. Faculty and students from fields as diverse as public health, sociology, history, anthropology, social psychology, and political science bring their special expertise to the study of health, health care, and health care services delivery.

OTHER PROGRAMS

Major decisions concerning part-time attendance have greatly improved educational opportunities for well-qualified health professionals to receive their academic credentials while continuing to contribute in their professional roles. The School offers year-round evening courses, expanded summer offerings, and an Executive Program in Health Services Management based on intensive monthly weekend sessions.

Dual Degree Programs

The School developed its dual degree programs to encourage students to integrate public health training with other clinical or professional studies (e.g., medicine, international affairs) that have a natural interface with public health. Dual degree programs currently enroll students in a variety of the University's professional schools.

Residencies

The School offers academic training for physicians in a number of residency programs in the New York area. In a collaborative effort, the New York City Department of Health and the School of Public Health Residency Training Program have been preparing physicians for careers in public health since 1950. In collaboration with Morristown Memorial Hospital and cooperating industries, the School offers an Occupational Medicine Residency. In addition, the School has established relationships with other preventive medicine residency programs, permitting residents to pursue concurrently a master's degree in public health. These include residency programs located at the State University of New York (SUNY) at Stony Brook and the Joan and Sanford I. Weill Medical College of Cornell University.

Educational Programs

Careful study of the existing health system, the probable shape of a future system, and the preparation of students for required public health practice, research, and teaching activities continue at the forefront of educational planning. In particular, consideration is given to the system roles that need to be filled, the career decisions graduates need to make, and the group and personal relationships necessary to the task of problem solving. As a result of these considerations, a number of carefully designed educational programs have been developed.

The School administers three graduate degree programs: Master of Public Health (M.P.H.); Master of Science (M.S.); and Doctor of Public Health (Dr.P.H.). The School also cooperates with other

University units in programs leading to the Ph.D. degree and a number of dual degrees: M.P.H./M.D.; M.P.H./D.D.S.; M.P.H./M.S. in Nursing; M.P.H./M.S. in Occupational Therapy; M.P.H./Master of Business Administration; M.P.H./Master in International Affairs; M.P.H./Master of Public Administration; M.P.H./M.S. in Social Work; M.P.H./M.S. in Urban Planning. The School also offers a dual degree program for medical and dental students leading to a Master of Science in Health Services Management. Each of these degree programs, unique in its goals, academic criteria, content, and methods, is described in more detail elsewhere in this Bulletin.

Among the overall educational objectives for all graduates of the School is the development of individual competence and improved skills, particularly in (1) recognizing and defining public health problems, setting priorities, and using scientific approaches to problem solving; (2) accumulating appropriate data information, analyzing and interpreting findings, and assessing relevance and validity; and (3) communicating effectively with colleagues and a variety of groups involved in delivering health services.

In all degree programs, students are required to choose an area of concentration. These are the major areas:

- biostatistics, including theoretical biostatistics, clinical research methods, and patient oriented research
- environmental health sciences, including medical/health physics, occupational medicine, environmental or molecular epidemiology, and toxicology
- epidemiology, including neuroepidemiology, psychiatric epidemiology, and cardiovascular epidemiology
- health policy and management, including health policy, planning, health economics, and effectiveness and outcomes research
- population and family health, including reproductive, adolescent, and child health in developed and developing countries, and forced migration and health
- sociomedical sciences, including health promotion and disease prevention, aging and public health, and history of medicine and public health.

The School has an exceedingly well qualified faculty, including faculty currently working in agencies and institutions in the New York metropolitan area. Their particular contribution is to relate classroom theory to the realities of practice. Educational resources are rich both within the University and in the metropolitan area. Teaching methods include lectures, seminars, case studies, role-playing simulations, audiovisual aids, field experience, and research.

The instructional activities of the School extend beyond the campus to provide continuing educational opportunities for practitioners in the field. These nondegree educational activities serve professional personnel of many disciplines in official and voluntary health agencies and in health facilities, drawing on faculty expertise derived from service, teaching, and research programs, and are presented through technical assistance, training programs, lectures, and short and intensive workshops. Important examples of the School's continuing education initiatives include:

- *AIDS education.* Through a grant from the Health Research Services Administration, the School provides continuing AIDS education to New York State and the U.S. Virgin Islands. This program contracts with ten academic medical centers throughout New York State to provide regionally based training to a broad spectrum of health professionals, focusing on prevention issues.

- *Collaboration with the city and state.* The School continues its long-term collaboration with the New York City and State Departments of Health in a number of activities that focus on continuing education, including a statewide education plan and a review of advanced technological applications exploring how best to apply existing and emerging new technology to continuing education needs. Using video technology, the School and the New York City Department of Health (DOH) have linked classroom space on the Health Sciences campus with conference space at DOH to facilitate reciprocal training.
- *Collaboration with community providers.* The School is one of three recipients of a contract to foster closer ties among universities, health departments, and community providers.
- *Continuing education on prevention.* The School has assumed a leadership role in providing continuing education to public health faculty, community-based providers, and health department staff on the results of collaborative research between academic institutions and government and community providers.

In addition to these schoolwide programs, individual faculty members are actively involved in a wide array of domestic and international continuing education programs.

Research Programs

The School's faculty carry out a wide range of research projects. The volume of School-sponsored grants and contracts is the third largest in the entire University. The School's research program addresses many of the major public health problems of New York City, New York State, the nation, and the world.

Students have an excellent opportunity to develop and enhance their research skills at the School. The close collaboration of the School with other departments, centers, and institutes on the Health Sciences campus and with other units of the University makes it easy to arrange interdisciplinary projects. Research is carefully woven into the educational environment both through the direct involvement of students in research projects and through the inclusion of research methods and findings in the courses taught by faculty members. In addition to classroom teaching, the School's research findings are disseminated through publications, presentations, continuing education, and the popular media.

New research proposals and projects are constantly under development, reflecting both the expertise of faculty and emerging issues and problems in public health. A sampling of current areas of research activity in each of the Divisions follows:

The research activities of the Division of Biostatistics involve both the development of statistical methods and the provision of biostatistical support for research investigators in other Divisions of the School and the Health Sciences campus at large. Investigations include: design and analysis of clinical trials; survival analytic and other innovative statistical methods for dealing with censored, truncated, or missing data; statistics in the law, e.g., using survival analytic techniques in age discrimination litigation. The Division is currently involved in studies comparing the drugs warfarin and aspirin for stroke prevention; and better therapies for second stroke prevention.

The Division of Environmental Health Sciences conducts research stressing the importance of the impact of industrialization on the environment and the health of human populations nationally and

internationally. The development of biologic markers of exposure, and to effects of carcinogens and other toxicants such as lead; investigation of effects of environmental hazards on asthma, cancer, and neurodegenerative diseases; investigation of arsenic in drinking water in Bangladesh; the application of biomarkers to molecular epidemiology; and the development of new analytic procedures for molecular markers of environmental contaminants are part of the Division's research program, along with applied toxicology, ethics in occupational medicine, and risk assessment.

In the Division of Epidemiology the areas being addressed include environmental epidemiology, cardiovascular disease, cancer, psychiatric disorders, reproductive and women's health, genetic factors in disease, and infectious disease. The Sergievsky Center, an affiliate of the Division, conducts research on neurological and developmental disorders and is an important resource for students.

The primary research goal of the Division of Health Policy and Management is to assist in the effort to reform and more effectively manage our health care system. Faculty research has addressed a number of areas, among them: health care financing for the uninsured; political and economic issues in health care reform; health care cost containment; assessment of health care technology; comparative health care systems. The Division also has undertaken pathbreaking work to design and develop methodologies for assessment of exposure to herbicides in Vietnam.

Some of the serious problems confronting disadvantaged women, children, and families around the world are the focus of research in the Division of Population and Family Health—for example, lack of access to quality health care, especially primary care, family planning services, and safe obstetrical services, including abortion; high levels of infant, child, and maternal mortality; restrictions on reproductive rights; the health needs of refugees and displaced persons; and high levels of sexually transmitted diseases.

Students and faculty in the Division of Sociomedical Sciences investigate the social, cultural, behavioral, and ethical factors affecting health and health care, and test effective behavior change strategies, particularly in the areas of AIDS and tuberculosis, substance abuse, mental health (especially stress, coping, and social supports), cancer, aging, and violence among adolescents and young adults. Application of research findings is given special importance within the Division's health promotion/disease prevention emphasis.

Many of the research activities in the School contain a service component. An inventory of health services research projects currently being supported by the Mailman School of Public Health includes more than 100 sponsored projects, in each of the School's Divisions and centers, that address many different topics related to the delivery of health services, both in the United States and in a number of developed and developing countries. An outstanding example is the Harlem Center for Health Promotion and Disease Prevention—a collaboration between the School and Harlem Hospital Center. The Center is one of fourteen prevention centers funded by the Centers for Disease Control to develop creative and replicable methods for promoting health and preventing disease. It is unique in its focus on an inner-city population, the residents of Central Harlem. Research and evaluation projects currently being conducted at the Center include: the Epidemiology and Prevention of Violence among Youth in Harlem, Prevention Education in Primary Care, and a household survey of risk factors for major causes of death in Harlem.

Service Activities

The School is unique in its extensive involvement in direct service-delivery programs. The School and several of its Divisions are involved in a number of substantial programs that provide public health services directly to populations in need, and in programs that provide ongoing technical assistance to other service-delivery organizations. Furthermore, as is appropriate for a school of public health, many of the School's research projects focus explicitly on topics that are directly applicable to the delivery of public health services.

The School's long tradition of supporting projects that provide technical assistance to agencies or organizations that provide health services to populations in need takes form locally in its strong ties with the Departments of Health in both New York City and New York State. Ties have also been developed over the years with organizations in a number of developing countries.

Collaboration between the New York City Department of Health (DOH) and the School goes back to the 1920s. The Preventive Residency Program, started in 1950, provides an opportunity for licensed physicians and dentists, while working full-time at DOH, to earn an M.P.H degree from the School. The Health Research Training Program, based at DOH and established in 1960, provides training opportunities for Columbia University students and others.

In recent years, the School and DOH initiated a series of joint projects aimed at addressing the objectives set forth in the *Healthy People 2010* initiative, among them: Pregnancy Outcomes in Hispanic Women in New York City; Expanding Primary Care in New York City DOH Child Health Clinics; Identifying Children at Risk for Learning Problems; Improving Tuberculosis Tracking in Harlem; Assessing Immunization Status among Children in Washington Heights; and Fertility Change and Family Planning in New York City. The Division of Epidemiology and DOH jointly teach two courses on communicable disease.

In ongoing collaboration with the New York State Department of Health, the School has links to Healthy Heart Programs located in New York City—Heart of Harlem, and Heights/Inwood Healthy Heart Program. These programs use multitargeted approaches to reduce morbidity from cardiovascular disease, including outreach to the community through churches, businesses, schools, and radio stations.

Collaborative projects with the New York State Department of Health and the School's Division of Population and Family Health have included: analysis of low birth weight trends and ethnic differences in lifestyle during pregnancy, pregnancy outcomes in native-born and foreign-born Puerto Ricans, prenatal care in Central Harlem, HIV transmission in breast milk, childhood injury problems in New York City, evaluation of family planning, and community-based immunization services.

The New York Injury Control Research Center is yet another endeavor comprised of representatives from both the state and city health departments, along with this School and the School of Public Health at the State University of New York (SUNY). The mission of the center is to facilitate and support multidisciplinary

academic, public health, and community-based research to help reduce morbidity and mortality from intentional and unintentional injury in New York State.

Collaboration with international organizations has developed mostly through programs supported by the Center of Population and Family Health. The Mailman School of Public Health has forged collaborative ties with service-delivery organizations in a number of developing countries in the Caribbean and West Africa.

In addition to providing technical assistance to service-delivery agencies, a number of programs supported by the School are involved in providing public health services directly to populations in need, especially populations in the neighborhoods of northern Manhattan, including hospital-based family planning clinics, comprehensive school-based clinics, a Head Start program, and a project serving people with AIDS.

The Center for Population and Family Health, in collaboration with New York Presbyterian Hospital and the Department of Obstetrics and Gynecology of the Faculty of Medicine, directs a network of hospital-based family planning clinics for women and men that provides comprehensive reproductive health care services, including HIV risk assessment. These clinics are the second largest providers of family planning services in New York City. The men's clinic is the only program in New York City, and one of the very few in the nation, that focuses on the reproductive health of adolescent males.

In 1986 the Center, in collaboration with New York Presbyterian Hospital and the Department of Pediatrics of the Faculty of Medicine, started a comprehensive program of adolescent health and social services, centered in junior high school clinics in the Washington Heights neighborhood. The program now covers all four of the district junior high schools and two public high schools. The clinics provide a comprehensive range of primary health services, including physical and mental health care as well as referral to the Center's adolescent family planning clinics at New York Presbyterian Hospital. In addition, the clinics provide a number of supplementary academic programs. For example, mentoring projects offer adult role models and teach good work habits, responsibilities, and skills at real jobs at the medical center.

A new Head Start program, the first one in the nation to be run by a school of public health, began operation in 1993. The program provides several kinds of preventive services to low-income families in the Washington Heights neighborhood: a preschool program; developmental screening and referral to the medical center for health care; and services to strengthen the family. Services to HIV-infected people and families are provided by several projects within the Center for Applied Public Health. The Northern Manhattan Women and Children HIV Demonstration Project provides comprehensive family-centered care to women and children with HIV, in collaboration with five upper Manhattan hospitals. HIV education, case management, social services, and access to research are also provided. In addition, dental care for HIV-infected children, and services for at-risk and HIV-infected adolescents, are offered through collaborations with Columbia's School of Dental and Oral Surgery, St. Luke's-Roosevelt Hospital, Harlem Hospital, and Mt. Sinai Medical Center.

RESOURCES FOR STUDY

Libraries

The Columbia Library system, one of the nation's largest academic libraries with holdings of more than 6.5 million volumes, is one of the world's great research libraries, and one of the University's strongest assets.

Health Sciences Campus

With more than 500,000 book and journal volumes, the Augustus C. Long Health Sciences Library, housed in the Julius and Armand Hammer Health Sciences Center, 701 West 168th Street, is one of the largest medical center libraries in the United States. It serves the Columbia University schools of public health, medicine, dentistry, and nursing, and the New York Presbyterian Hospital and other health care, instructional, and research programs in the Columbia Presbyterian Center. More than 4,400 periodicals are received regularly. Its Center for Academic Information Technology houses over 3,500 audiovisual and computer-assisted instruction programs, and maintains three public access computer facilities, all with Macintosh and IBM-compatible computers and software for word processing and data analysis, as well as other capabilities. The Library includes a large media and microcomputer center, a microcomputer classroom, and an extensive collection of rare

books and archival materials. The four floors occupied by the Library offer a comfortable atmosphere conducive to study, including such amenities as group study and conference rooms, individual study carrels, and a leisure reading lounge. The Library offers a wide array of services, including computerized literature searching, individual consultation on research topics, interlibrary loans, instruction on the use of information resources, computer workshops, photocopying, and fax services. Students also arrange free limited e-mail accounts through the Library, giving them access to electronic resources at Columbia University and the Internet.

The New York State Psychiatric Institute Research Library, on Columbia's Health Sciences campus, is a major resource for psychiatry, psychoanalysis, and clinical psychology. In addition, it has strong collections in cognitive and experimental psychology, neuroscience, child psychiatry and psychology, and statistics. The collection includes 15,000 volumes and 400 periodicals. Computerized literature searches, a heavily used service, provide access to a number of computerized clearinghouse organization resources.

Morningside Campus

Over twenty-five other Columbia libraries are located on the Morningside campus at 116th Street and Broadway, and are open to all students and faculty who carry Columbia identification cards.



A study area in the Health Sciences Library.

The main collection is housed in Butler Library; special and departmental collections are housed in other buildings on the campus. Columbia students and faculty are also permitted access to the collections of approximately forty other research institutions including Stanford and Yale Universities, under the auspices of the Research Libraries Group. Information about the Research Libraries Group can be obtained from the Health Sciences Library.

Affiliated Health and Academic Resources

The Mailman School of Public Health's collaborative relationships with other units of the University and with outside agencies and institutions provide students with opportunities to explore wider areas of public health concern from different viewpoints. The following indicate some of these extramural resources which contribute to the School's programs.

Affiliated Centers

COLUMBIA PRESBYTERIAN CENTER

Columbia Presbyterian Center is one of the world's foremost centers for patient care, research, and health sciences education and training. The medical center—the nation's first—was created in 1922 as an alliance between the Presbyterian Hospital (now named New York Presbyterian Hospital) and Columbia University's College of Physicians & Surgeons. Soon afterward, it became closely affiliated with the New York State Psychiatric Institute. The Center currently includes the divisions and institutes of the Columbia University health sciences schools (College of Physicians & Surgeons, Public Health, Nursing, Dental and Oral Surgery); the New York Presbyterian Hospital facilities, including the Milstein Building; the New York State Psychiatric Institute; the Harkness Eye Institute; the Neurological Institute; and the Upper West Side Health Center. It covers about twenty acres in northern Manhattan, extending from West 165th Street to West 170th Street and from Broadway to the West Side Highway, and is readily accessible from all parts of the city.

Apart from the university-hospital complex, the Center is also closely networked with an ever-expanding number of affiliated hospital centers in New York City, the greater metropolitan New York/New Jersey area, upstate New York, and Connecticut. A large number and variety of educational programs use the combined resources of the medical center and its affiliated hospitals.

The facilities available at the Columbia Presbyterian Center and its affiliated institutions amount to a "medical mall" second to none in the United States. Its facilities have been the site of numerous important advances in the detection, treatment, and prevention of diseases. With the recent expenditure of millions of dollars to upgrade its facilities, the medical center has continued to expand its leading-edge technologies across a broad spectrum of therapeutic areas.

HARLEM CENTER FOR HEALTH PROMOTION AND DISEASE PREVENTION

A collaborative program between the Centers for Disease Control and Prevention, Harlem Hospital Center, and The Joseph L. Mailman School of Public Health, this is the only one of fourteen federally funded Prevention Research Centers with an urban

African-American focus. The Center's mission is to collect, disseminate, and implement knowledge of new research findings about disease prevention and health promotion among urban populations. Its overall goal is to identify ways to decrease the high rates of morbidity and mortality among both children and adults living in Harlem. It is a unique resource for community residents, health care providers, and researchers committed to improving the health status of the Harlem community, and more recently, Washington Heights.

CENTER FOR APPLIED PUBLIC HEALTH

The Center for Applied Public Health directs multidisciplinary programs of research, training, and service to meet priority public health needs throughout New York City and the state, particularly on HIV/AIDS and sexually transmitted diseases. The Center collaborates with various Divisions of the Mailman School of Public Health, state and local health departments, and most area hospitals, medical schools, and private organizations to improve existing programs and to deliver new services. The Center focuses on health services models, policy and evaluation studies, and preventive public health education. Current programs of the Center include the Northern Manhattan Women and Children HIV Project, the Adolescent HIV Project, Pediatric AIDS Dental Services, the Comprehensive Pediatric/Family HIV Center, the New York City Department of Health/Columbia University collaborative grants, the Ryan White Foundation, ACTG 076-Patient and Provider Education Studies, and various outreach programs at local health departments. These projects are developed and delivered in collaboration with various community organizations and Divisions of the School.

CENTER FOR VIOLENCE RESEARCH AND PREVENTION

The effect of violence as a growing public health problem led the Mailman School of Public Health to establish a new Center for Violence Research and Prevention in 1995. The Center studies the antecedents, consequences, and social control of violence. Violence in families, racial disparities in juvenile justice, the waiver of juvenile offenders to adult courts, gun use among adolescents, the dynamics of crime and drugs in economically distressed urban neighborhoods, participation of women in drug selling, and youth gangs are among the Center's areas of inquiry. The Center has research partnerships with public health and criminal justice agencies including the New York City Department of Health, the New York Academy of Medicine, and the New York City Housing Authority to focus on the places and populations at risk for violence. The Center's research is supported by the Centers for Disease Control and Prevention, the National Science Foundation, the National Institute of Justice, and the Annie E. Casey Foundation.

NATIONAL CENTER FOR CHILDREN IN POVERTY

The National Center for Children in Poverty (NCCP) was established at the Mailman School of Public Health to strengthen domestic policies and programs that enhance the health and development of children under six years old living in poverty. Supported by the Ford Foundation and the Carnegie Corporation, the Center focuses on early childhood care and education; child and family health; family and community support; prevention of the "new morbidities"—violence, emotional and behavior disorders, and substance abuse; cross-cutting, multistate policy analyses; demographic and evaluation research; and communications. Using the resources of its library, public education effort, and publications, the Center assesses and synthesizes promising policy

and program ideas for the alleviation of the plight of poor children. These findings are brought to the attention of state and local policy makers, program managers, advocates, the media, and others in the public and private sectors.

GERTRUDE H. SERGIEVSKY CENTER

The Sergievsky Center, established in 1977, focuses on epidemiological approaches to the study of neurodevelopmental disorders throughout the life span. The Center's main focus has been correlating epidemiologic techniques with genetic analysis and clinical investigation to explore all phases of diseases of the nervous system. Areas of concentration include epilepsy and seizure disorders, degenerative diseases of the aging nervous system, cerebral palsy and related developmental disorders of the nervous system in infants and children, perinatal epidemiology, stroke and cerebrovascular disease, genetic epidemiology, and cognitive neuroscience. Funded with an endowment, the Center participates in the teaching programs of the Epidemiology Division of the Mailman School of Public Health and the Departments of Neurology, Psychiatry, and Pediatrics and provides a major resource in epidemiologic research and training in neuroepidemiology.

CENTER FOR THE STUDY OF SOCIETY AND MEDICINE

The interdisciplinary Center was established in 1983 to enrich the teaching and practice of medicine with the conceptual and policy insights of the social sciences and humanities. Its collaborative effort provides a unique opportunity for scholars trained in sociology, law, history, social work, philosophy, and economics to work together with medical clinicians and researchers. Center faculty teams teach a required course for second-year medical students on the social forces shaping contemporary medical practice, conduct seminars for medical house staff, participate in daily hospital rounds, and lecture at Columbia-affiliated institutions. The Center also collaborates in the program in History and Public Health in the Division of Sociomedical Sciences. The Center's programs are focused on medicine's intersection with the humanities, society, human rights, public policy, and ethics, as well as on the social context of biomedical research.

INTERNATIONAL INSTITUTE FOR THE STUDY OF HUMAN REPRODUCTION

The aims of the Institute, founded in 1965, include teaching, research, and the provision of clinical and social services related to the reproductive health of men and women. The Institute is organized into two autonomous centers:

The **Center for Reproductive Sciences** is a multidisciplinary group of basic and clinical research scientists with a specific interest in the overlapping field of genetics and early development, particularly concerned with understanding the mechanisms that control normal germ cell development, normal genome expression, and their significance in the production of abnormal human offspring. The Center's mission includes integrated multidisciplinary, high quality research in reproduction with the training and teaching of future scientists and clinicians.

The **Center for Population and Family Health** addresses the reproductive, adolescent, and child health conditions that confront communities throughout the world, with a particular focus on the needs of the communities in which the Center is located in upper Manhattan. The Center contributes to the improvement of community health by supporting activities and programs that educate

future generations of public health workers; providing direct services to populations in need; and promoting research and policy analyses that increase knowledge and contribute to the quality of service-delivery programs. The Master of Public Health (M.P.H.) program in Population and Family Health provides students the opportunity to apply newly acquired skills in the Center's own school-based and community health clinics, which receive over 60,000 visits annually.

Research is linked to service delivery through evaluation of the Center's family planning, adolescent health, and early childhood service. The Center's research agenda includes studies on new contraceptive methods, epidemiological and operations research and policy analyses of maternal mortality, sexually transmitted diseases and family planning in Africa, immunization and asthma in New York and Africa, and law and policy issues related to health and human rights, with a particular focus on women's rights and the health of refugees and displaced populations.

In 1998 the Center initiated the program on Forced Migration and Health. The program addresses the need for a technically sound response to the health problems affecting displaced people, the communities that host them, and the communities from which they move. The program will analyze the problems and work toward developing solutions in partnership with international, foreign assistance, and humanitarian agencies.

INTERNATIONAL CENTER FOR HEALTH OUTCOMES AND INNOVATION RESEARCH (InCHOIR)

In 1994, the Division of Health Policy and Management and the Department of Surgery (College of Physicians & Surgeons) established the International Center for Health Outcomes and Innovation Research (InCHOIR). Currently, the Center also receives core support from the College of Physicians & Surgeons and the New York Presbyterian Hospital. The Center has an interdisciplinary faculty with expertise in biostatistics, clinical epidemiology, health economics, quality of life, and health policy analysis. The Center's mission is to further the quality of clinical care by advancing the analytical methods for evaluating medical treatments and applying these methods to innovative approaches to patient care. In addition to evaluating the outcomes of care, the Center is dedicated to advancing innovation in medicine by creating a better understanding of the process by which new treatments emerge and become adopted into clinical practice. In particular, the Center has the following research objectives: (1) to conduct clinical trials and other prospective cohort studies that have a special emphasis on survival, quality of life, patient preferences, and cost-effectiveness; (2) to devise quality improvement programs based on empirical observations; and (3) to examine the policy issues surrounding the development, introduction, and diffusion of new clinical interventions (broadly defined as surgical procedures, devices, and pharmaceuticals).

NAOMI BERRIE DIABETES CENTER

The Center is located in the new Russ Berrie Medical Science Pavilion on the Health Sciences campus. The Center combines both patient care and research. It offers state-of-the-art multidisciplinary and humanistic clinical care for both adults and children with diabetes mellitus. Educational, nutritional, and psychosocial counseling focus on helping the patient and family to cope effectively with diabetes management. Basic and clinical research programs in the Naomi Berrie Diabetes Center focus on the biologic basis of diabetes, the prevention of Type 1 and Type 2

diabetes, as well as diabetic complications. Emphasis is on translational or bridge research enabling basic research discoveries to move as rapidly as possible to the patient.

MORRIS W. STROUD III CENTER FOR STUDIES ON QUALITY OF LIFE

Renamed in 1995, this Center includes its former identity, the **Center for Geriatrics and Gerontology**, as well as the **Geriatric Educational Center**. Its administrative relationships are with the Faculty of Medicine of Columbia University and the New York State Psychiatric Institute. The Center's activities include: conducting fundamental studies on the theory, measurement, and mechanisms of quality of life in health, illness, and aging; testing theory in population surveys (especially in northern Manhattan in New York City and in London, England); evaluating and developing assessment techniques and clinical practice standards in acute, long-term and home-based care sites; training researchers and clinicians in applications; and fostering interdisciplinary collaboration on quality of life issues.

INSTITUTE OF HUMAN NUTRITION

The Institute of Human Nutrition is an interdisciplinary unit whose mission is to study all aspects of nutrition that relate to human health.

The Institute functions to coordinate academic nutrition activities being carried out within many units (faculties, departments, centers) within the Columbia University system. Through its Master of Science, Doctor of Philosophy, and postdoctoral programs, the Institute trains individuals for scholarly activities in university and research centers that are in the forefront of the movement to advance nutrition as a health science. In collaboration with the Institute of Human Nutrition, the Mailman School of Public Health conducts research and academic activities that focus on the role of nutrition in health promotion and disease prevention, and on the translation of nutrition information into behavior, medical practice, and policy.

HERBERT IRVING COMPREHENSIVE CANCER CENTER

The Columbia Presbyterian Center has had a National Cancer Institute designated Cancer Center since 1972. The objectives of this Cancer Center are: (1) to support and facilitate basic laboratory and clinical research related to cancer, and foster collaborative research projects between epidemiologists, laboratory scientists, and clinical investigators; (2) to promote a targeted research program in human cancer causation and prevention, which interfaces with other research activities of the Center; (3) to provide education and training in cancer research for scientists, clinical investigators, and health professionals at all levels; (4) to promote the dissemination of cancer-related clinical and technical expertise and to foster cancer control activities in the community. A specific emphasis of the Center is the use of concepts and methods in cellular and molecular biology to enhance understanding of the etiology and pathophysiology of human cancer, and to develop more effective strategies for cancer prevention, diagnosis, and treatment.

HIV CENTER

The Mailman School of Public Health is a collaborator in the HIV Center for Clinical and Behavioral Studies of AIDS at the New York Psychiatric Institute. This Center, funded by a large grant given by the National Institutes of Mental Health, develops and analyzes

community health education, prevention, and training programs to change high-risk behaviors among many different populations including women and children, intravenous drug users, gay men, and heterosexual men and women.

THE RICHARD AND HINDA ROSENTHAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE

The Center was established in 1993 as one of the first comprehensive programs in alternative medicine at an academic institution. Its primary objectives are to: foster and conduct research to determine the efficacy and safety of alternative and complementary remedies and practices, and probe their underlying mechanisms; develop curriculum and training programs to promote wider knowledge, greater understanding, and credible scientific efforts in alternative and complementary medicine; and become an international leader in providing information to practitioners, researchers, and the public about alternative and complementary therapies.

The Center is also the home of the **Center for Complementary and Alternative Medicine Research in Women's Health**, one of ten specialty centers in alternative medicine funded by the National Institutes of Health. The Center is a collaborative effort involving faculty from the College of Physicians & Surgeons, the School of Nursing, and the Mailman School of Public Health. Broad areas of interest include: botanical medicine, ethnomedicine, mind/body medicine, manual therapies, and nutritional therapies. Other issues of concern include those of minority women, and those involving appropriate methodologies for alternative medicine research. Specific women's health areas receiving initial focus include: breast cancer, menstrual disorders, menopausal symptoms, uterine fibroids, osteoporosis, and pregnancy and childbirth.

IRVING CENTER FOR CLINICAL RESEARCH

The Irving Center for Clinical Research is a core facility that provides resources to clinical investigators to stimulate multidisciplinary, intensive investigation of human disease and clinical pharmacology. It includes adult and pediatric units, a metabolic diet kitchen, an outpatient unit, a core laboratory, and a computer facility. The Center is designed so that acutely ill as well as ambulatory patients can be studied. Use of the Center is open to qualified faculty members of the clinical and basic science departments of the College of Physicians & Surgeons upon approval of the Advisory Committee. Although the primary purpose of the facility is concerned with research, it also provides unusual opportunities for undergraduate and postgraduate training in clinical investigation.

CENTER FOR MEDICAL INFORMATICS

The Integrated Academic Information Management System (IAIMS) is considered a model information system for a medical center that combines academics and health care. The National Library of Medicine chose the Columbia Presbyterian Center as one of the first two sites to receive funding for full-scale implementation of an integrated information system. The University's Center for Medical Informatics, with the Hospital's Clinical Information Services department, provides implementation support for the IAIMS network, which integrates research, clinical care, library, academic, and administrative information systems. The IAIMS information network unites students, faculty, and staff on the Health Sciences campus, with links to the downtown campus as well as the hospital's neighborhood health clinics and the Allen Pavilion. Users can access lab results and other clinical decisions, consult

library references, schedule surgery, code medical records, view medical charts, send electronic mail, use word processing, and carry out many hospital administrative functions. A Ph.D. program in Medical Informatics is offered through the Graduate School of Arts and Sciences.

Morningside Campus

GRADUATE SCHOOL OF ARTS AND SCIENCES

The Graduate School of Arts and Sciences (GSAS) is made up of the nonprofessional areas of social sciences, humanities, and natural sciences. In addition to offering graduate courses in a wide variety of health-related areas, open to students at the Mailman School of Public Health on an elective basis, GSAS collaborates with Public Health in Ph.D. programs in biostatistics, environmental health sciences, epidemiology, and sociomedical sciences. For further information, consult the bulletin of the Graduate School of Arts and Sciences.

TEACHERS COLLEGE

This graduate school of education, formally affiliated with the University, is situated on West 120th Street adjoining the Morningside campus. It prepares graduate students for professional service in education, through master's and doctoral programs. Selected courses in the social sciences, health education, nursing and nutrition education, and international studies are particularly suitable as electives for students in Public Health. For further information consult the bulletin of Teachers College.

COLUMBIA BUSINESS SCHOOL

Columbia Business School gives students a liberal business education, with concentrations in accounting, business economics and public policy, management of organizations, and other areas of study. Through a collaborative arrangement, Public Health students may elect courses at the Business School. In addition, a special combined M.P.H./M.B.A. degree program has been designed to prepare individuals for administrative positions in health facilities, agencies, and institutions. For further information consult the bulletin of Columbia Business School.

GRADUATE SCHOOL OF ARCHITECTURE, PLANNING, AND PRESERVATION

Students in Public Health interested in health planning may elect courses at the Graduate School of Architecture, Planning, and Preservation. A dual master's degree program leads to both the M.P.H. degree and the degree of M.S. in urban planning. For further information consult the bulletin of the Graduate School of Architecture, Planning, and Preservation.

SCHOOL OF SOCIAL WORK

This school's affiliation with Columbia University dates back many decades. It provides the basic components of modern social work education and practice at the master's and doctoral levels. Public Health students may elect courses in the School of Social Work to fulfill public health master's degree requirements. A dual M.P.H./M.S. degree program in social work is coordinated and administered by both schools. For further information, consult the bulletin of the School of Social Work.

SCHOOL OF LAW

Through cooperative arrangements eligible Public Health students may elect courses in such areas of law as administration, the

environment, human rights, and poverty. For further information, consult the bulletin of the School of Law.

SCHOOL OF INTERNATIONAL AND PUBLIC AFFAIRS

Programs leading to the degrees of Master of International Affairs and Master of Public Administration are offered. Formal dual programs with the M.P.H. program are available. For further information, consult the bulletin of the School of International and Public Affairs.

Affiliated Hospitals

NEW YORK PRESBYTERIAN HOSPITAL

Founded in 1868, Presbyterian Hospital, now named New York Presbyterian Hospital, joined with the Columbia College of Physicians & Surgeons to form the Columbia Presbyterian Center, which opened in 1928.

The Hospital includes a number of individual units:

The Milstein Hospital Building is the single largest hospital pavilion, with 745 beds. This technologically advanced, adult primary care hospital was opened in 1989.

The New York Orthopaedic Hospital, New York Presbyterian's orthopedic surgery service, opened as a dispensary in 1866. The first artificial joints for hips, shoulders, and knees were developed there.

Squier Urological Clinic is the Urology Service of the New York Presbyterian Hospital.

Sloane Hospital for Women, the Hospital's obstetrics and gynecology service, is best known for care of women at risk for difficult pregnancies and for treatment of ovarian and breast cancer. It has one of the nation's most successful in vitro fertilization programs.

Babies and Children's Hospital, founded in 1887, provides for general medical and surgical care of infants and children up to their late teens and care for premature babies. Its neonatal intensive care unit has been designated a center of excellence by the National Institutes of Health for treatment of respiratory disorders in premature babies. It also excels in treating infants and children with heart defects.

Neurological Institute, one of the first nongovernmental hospitals in the country for the treatment of diseases of the nervous system, was founded in 1909. It is known for research in and treatment of Parkinson's disease, movement disorders, aneurysms, epilepsy, brain tumors, and strokes.

The Edward S. Harkness Eye Institute, site of the Hospital's Ophthalmology Service, opened in 1933. The Eye Institute is a leading center for research in and treatment of all eye disorders, including cataracts, tumors of the eye, and glaucoma, and has complete facilities for the medical and surgical treatment of adults and children with eye diseases. The Eye Institute has been a pioneer in the clinical use of lasers and ultrasound.

Vanderbilt Clinic, presented to Columbia University by the Vanderbilt family in 1888, comprises all of the Hospital's outpatient clinics and provides medical and surgical care in every discipline.

The Allen Pavilion is a 300-bed community hospital at 220th Street and Broadway. It offers a wide range of medical and surgical services to residents of northern Manhattan, Riverdale, and other Bronx communities.

Columbia-Presbyterian/Eastside and *Columbia-Presbyterian/Westside* offer patients convenient locations for a wide range of ambulatory care services, including diagnostic imaging, women's health, and sports medicine.

Washington Heights/Inwood Ambulatory Care Network Corporation (ACNC) is a multisite network of doctors' offices that provide primary care to the Medical Center's surrounding community by New York Presbyterian Hospital staff.

HARLEM HOSPITAL CENTER

Harlem Hospital Center, founded in 1887, is a progressive acute care general teaching hospital offering primary, secondary, and tertiary care for children and adults living in the central Harlem area. The main complex consists of seven buildings. Eleven strategically located satellites extend the hospital out into the community. Managing over half a million annual patient visits, the hospital functions as the primary health care provider for a catchment area of three-and-a-half square miles. Since 1968, Columbia University, through a contractual arrangement with the New York City Health and Hospitals Corporation, has been responsible for all professional medical services in this hospital and nominates its professional staff. The Mailman School of Public Health is cooperating in demonstration services, applied training, health promotion and disease prevention programs, and public health research activities at the Hospital Center and the surrounding community.

NEW YORK STATE PSYCHIATRIC INSTITUTE

The Institute is the oldest psychiatric research institute in the United States, and one of the largest in the world devoted to mental health research. It was built and is maintained by the New York State Office of Mental Health. Through a contractual arrangement, it is affiliated with the College of Physicians & Surgeons. The Institute's functions are to do research into the causes and treatment of psychiatric illness, to provide education for mental health professionals, and to provide the highest quality of clinical care for patients with psychiatric disorders. The Institute currently maintains thirty major research laboratories, a research hospital, and a wide variety of specialized outpatient departments that provide diagnostic and treatment programs. More than three hundred biological, behavioral, and social research studies are being conducted at the Institute.

Departments of Health

NEW YORK CITY DEPARTMENT OF HEALTH

In addition to the facilities provided through the Upper West Side District Health Center, the New York City Department of Health has traditionally made its vast public health activities available for study. The overall administration of the Department of Health and of its bureaus is so comprehensive and the diversity of services so broad that graduate students are provided with unique opportunities for observation of, and experience in, administrative problem-solving in public health.

Building upon a history of nearly 70 years of collaboration, the New York City Department of Health and the Mailman School of Public Health have joined forces on a special project to meet the objectives set forth in the U.S. Department of Health and Human Services' "Healthy People 2000." With multiple-year funding from

the Health Resources and Services Administration (HRSA), the Model Health Department/School of Public Health Collaborative Project represents a mutual effort to strengthen ties in order to meet the nation's health objectives.

The primary goals in the first year were to facilitate the exchange of School faculty and Department staff for applied projects and teaching activities and to create a joint Steering Committee to oversee shared projects. These included an assessment of health needs in the communities of Harlem and Washington Heights-Inwood, and projects focusing on areas of particular concern to inner-city minority populations, such as infant mortality, child health, tuberculosis control, prenatal care, pediatric ambulatory care services, child immunization status, lead poisoning prevention, improved tracking of TB patients, family planning, and violence.

UPPER WEST SIDE DISTRICT HEALTH CENTER

The Health District runs treatment and diagnostic programs for the entire West Side community north of 59th Street, serving a population of approximately 450,000. The Health Center building at the corner of 168th Street and Broadway houses child health, dental, and tuberculosis control (chest) clinics run by the New York City Department of Health and the Health and Hospitals Corporation, a methadone maintenance clinic, and a "Seniors Helping Seniors" program. The District's satellite facilities and administrative offices provided an STD clinic, an ACT (Anonymous Counseling and Testing) site, additional child and dental health clinics, and the Bureau of Day Care and the Family Day Care Offices.

The Health Center is available to students and staff of Columbia University who wish to study community health problems and programs and to participate in community health activities of concern to the population of the West Side.

STATE AND LOCAL DEPARTMENTS OF HEALTH

The New York State Department of Health and the New Jersey Department of Health have been cooperative in making their facilities available to graduate students, as have many other health departments, such as those of Westchester, Rockland, Nassau, and Suffolk Counties. Experience in suburban and semirural communities provides opportunities to study and participate in well-organized health department and related voluntary and official agency programs.

New York City Health and Hospitals Corporation

The facilities of the municipal hospital system are used extensively for training and research. This system constitutes the largest and most comprehensive medical care system in the United States that is under one administration and in one location.

Other Agencies and Organizations

Many agencies and organizations contribute to the enrichment of the School's teaching program. The following is a partial list and is in addition to those facilities discussed above.

Government Organizations

Connecticut State Office for the Aging
National Center for Health Research
National Center for Health Statistics
National Institute on Drug Abuse
New Jersey Department of Health
New York City Addiction Services Agency
New York City Department for the Aging
New York City Department of Mental Health and Mental Retardation Services
New York City Environmental Protection Administration
New York City Mayor's Office of Municipal Labor Relations
New York State Association of Homes and Services for the Aging
New York State Department of Environmental Conservation
New York State Department of Mental Hygiene
New York State Institute for Basic Research in Mental Retardation
New York State Office for the Aging
United Nations
United States Department of Health and Human Services
United States Food and Drug Administration
United States National Institutes of Health
United States National Institute of Mental Health
United States Public Health Service
World Health Organization

Voluntary, Social, and Health Agencies

The Alan Guttmacher Institute
American Foundation for the Blind
American Public Health Association
American Occupational Medicine Association

ARC-Fort Washington Senior Center
Associated Hospital Service of New York
Blue Cross-Blue Shield of Greater New York
Cancer Care
Childrens Aid Society, New York City
Chinatown Health Clinic
Church Charity Foundation
Citizens Committee for Children of New York City, Inc.
Community Action for Legal Services
Community Health Program of Queens-Nassau
Connecticut Community Care, Inc.
Council on the Environment of the City of New York
The Door—A Center for Alternatives
Family Planning International Assistance
Federation of Protestant Welfare Agencies
The Ford Foundation
Fort Washington Houses and Senior Center
Foundation for Child Development
Greater New York Hospital Association
Group Health Insurance
Health Insurance Plan of Greater New York
Health Systems Agency of New York City
International Planned Parenthood Federation
Jessie Smith Noyes Foundation, Inc., New York City
The Lighthouse—New York State Association for the Blind
March of Dimes
Margaret Sanger Planned Parenthood Center
Martin Luther King Health Center, Bronx
Mid West Side Health Service Program, New York City
Morris Heights Health Center
National Council of Organizations for Children and Youth
National League for Nursing, New York City
New York Academy of Medicine
New York Academy of Sciences
New York Service Program for Older People, Inc. (SPOP)
Planned Parenthood Federation of American
Planned Parenthood of Metropolitan Washington, D.C.
The Population Council
Red Cross

Riverside Church Health Action Center
The Rockefeller Foundation
Self-Help Community Services UNICEF
United Nations Fund for Population Activities
United Hospital
Visiting Nurse Service of New York

Clinics, Hospitals, and Schools

Albany Medical Center, New York
Albert Einstein College of Medicine, Bronx
Albert Einstein Medical Center, Philadelphia, Pennsylvania
New York Downtown Hospital
Bellevue Hospital
Beth Abraham Hospital, Bronx
Beth Israel Hospital, Boston, Massachusetts
Beth Israel Medical Center, New York City
Booth Memorial Medical Center
Bronx Lebanon Hospital
Bronx Municipal Hospital Center
Brookdale Hospital Center
The Brooklyn Hospital
Burke Rehabilitation Center
Cabrini Medical Center, New York City
Catholic Medical Center for Brooklyn & Queens
Children's Hospital
City College of New York
Coler Memorial
College Hospital, Newark, New Jersey
Eastern Women's Center
Fordham Hospital
Good Samaritan Hospital
Grasslands Hospital
Gouverneur Hospital, New York City
Hackensack Hospital, New Jersey
Harlem Hospital Center
Hospital for Joint Diseases and Medical Center
Hunter College
Jewish Home & Hospital for Aged
John F. Kennedy Medical Center, Edison, New Jersey
Kings County Hospital Center
LaGuardia Hospital
Lenox Hill Hospital
Long Island Jewish—Hillside Medical Center, New Hyde Park, New York
Lutheran Medical Center, Brooklyn, New York
Maimonides Medical Center, Brooklyn, New York
Mary Hitchcock Memorial Hospital, Hanover, New Hampshire

Mary Imogene Bassett Hospital
Medical Center at Princeton, Princeton, New Jersey
Memorial Sloan-Kettering Cancer Center
Methodist Hospital of Brooklyn
Metropolitan Hospital Center
Metropolitan Hospital & Health Center, Detroit
Middlesex General Hospital, New Brunswick, New Jersey
Misericordia Hospital Medical Center
Montefiore Hospital and Medical Center
Morrisania City Hospital
Morrisania Neighborhood Family Care Center, Bronx, New York
Morristown Memorial Hospital, Morristown, New Jersey
Nassau Hospital, Mineola, New York
Neurological Institute
Newark Beth Israel Medical Center, Newark, New Jersey
New Rochelle Hospital Medical Center
Weill Medical College of Cornell University
New York Infirmary
New York University Institute of Environmental Medicine
New York University Medical Center
North Central Bronx Hospital
North Shore University Hospital
Paine Whitney Psychiatric Clinic
Pennsylvania Hospital, Philadelphia
Public Health Service Hospital, New York
Queens Hospital Center
Roosevelt Hospital
San Francisco City Hospital, San Francisco, California
Staten Island Hospital
State University of New York, Stony Brook
St. Clare's Hospital and Health Center
St. John's Hospital and Medical Center
St. John's Hospital and Memorial Center, Paterson, New Jersey
St. Luke's-Roosevelt Hospital Center
St. Vincent's Hospital Medical Center
Valley Hospital, Ridgewood, New Jersey
Veterans Administration Hospital, Bronx
Veterans Administration Hospital, Brooklyn
Veterans Administration Hospital, Manhattan
Westchester County Medical Center



DEGREE REQUIREMENTS

M.P.H. • M.S. • Dr.P.H. • Ph.D. • Dual Degree

Master of Public Health (M.P.H.)

see also *Academic Programs*:

Biostatistics
Environmental Health Sciences
Epidemiology
Health Policy and Management
Population and Family Health
Sociomedical Sciences
General Public Health

The primary educational objective of the different programs leading to the M.P.H. degree is to provide all candidates with a strong general public health orientation along with opportunities to gain new knowledge, points of view, and skills in the specific areas of public health in which they choose to concentrate. **Some previous professional or other relevant work experience is highly desirable for all candidates.**

For many candidates, the M.P.H. will not be their first professional degree. Many students enter the M.P.H. degree program with previous master's or doctoral degrees or with varying years of practical experience in professional fields related to public health. Graduates of medical, nursing, dental, and other clinical programs, and applicants who have earned master's or doctoral degrees in other health-related areas, or in other academic or professional areas, will find their academic backgrounds well suited to this program.

M.P.H. Summary of Requirements

To earn an M.P.H. degree, all students must satisfactorily complete *45 points of coursework* averaging, on a full-time basis, 15 points each term; and a *practicum* (practical experience) equivalent to at least one term. Some programs of study also require a *master's essay or project*.

In addition, students without a health professional background are required to prepare for and to take a *Medical Background Examination* in their first term of study, in order to demonstrate familiarity with the basic aspects and terminology involved in the activities of health professionals. (Students will receive information and instructions for this exam from the Office of Student Services when they first register.)

On a full-time basis, the M.P.H. is typically completed in one and one-half to two years. Full- and part-time students are expected to complete all program requirements within five years.

COURSEWORK

Courses providing the required points of credit within the M.P.H. degree program are grouped into **Core Courses**, **Divisional/Program Required Courses**, and **Elective Courses**:

Core Courses: The core curriculum includes required introductory courses in **Biostatistics,* Environmental Health Sciences, Epidemiology, Health Policy and Management, and Sociomedical Sciences**. These courses provide a common body of knowledge in basic public health philosophy and practice, and are required of all candidates for the M.P.H. degree regardless of previous training, professional interests, career objectives, Division or program concentration. All core courses are offered at least twice a year. By successfully completing a waiver examination in a core area, a student may be permitted to substitute a course in the same or another area.

Divisional/Program Courses: These courses provide a series of educational experiences focusing on specific public health areas and offer students opportunities to concentrate on particular issues, skills, interests, or career goals. All candidates for the M.P.H. degree are expected to select one of the following Divisions/programs and to follow the prescribed program of study within that Division: **Biostatistics, Environmental Health Sciences, Epidemiology, Health Policy and Management, Population and Family Health, Sociomedical Sciences, General Public Health**. Applicants should indicate on the application form which concentration they would like to pursue. Each of these areas of concentration has specific educational objectives, requirements, and methods of study. For an overview, see *Academic Programs*. When students first enroll, Divisions will provide them with handbooks containing all course and administrative requirements.

Elective Courses: Elective courses may be selected from within a student's area of concentration or in a related field, and from courses offered at the School or in other parts of the University. Most elective points are earned in formal courses; some may be earned on a tutorial (independent study) basis. The choice of electives is made with the approval of the student's faculty advisor.

*As a prerequisite for the biostatistics core course, students must demonstrate proficiency on a quantitative skills examination. Students are urged to provide themselves with remedial work in math and algebra, if necessary, before arrival at the School.

PRACTICUM (PRACTICAL EXPERIENCE)

All M.P.H. degree candidates must meet a practical experience requirement equivalent in time and effort to a minimum of one academic term. The practicum provides educational opportunities that are different from, and supplementary to, the more academic aspects of the program. The duration of the practicum may be modified for some students—either shortened, lengthened, or integrated—depending on their professional standing, preparation, and career objectives. The focus, content, approach, and timing of the practicum varies with the Division and with the particular needs of each student. For example, it may take the form of field or agency observations; placement in an administrative, research, or clinical setting; participation in ongoing research or program activities; or independent study. It may be completed before or after the final term of academic work, or be integrated into the academic program. Any substantial alteration in the practicum requires prior written approval of the student's advisor.

Some students may be able to meet the practicum requirement through prior relevant experience in the health field. This requires the approval of the student's academic advisor and the Dean's Office. Those new to the field, in career transition, or in training for a new aspect of public health would be expected to complete a practicum regardless of prior academic or professional experience.

INTEGRATIVE EXPERIENCE

Each of the School's programs requires students to demonstrate their ability to integrate their academic studies with some aspect of their future professional practice. These integrative experiences will take different forms, as determined by the Divisions. Divisions may require students to demonstrate their mastery through comprehensive examinations, master's essay, field placement, capstone seminar, or other experiences by which faculty can determine that the student has the ability to apply the principles, concepts, and skills learned in the classroom to their chosen area of public health practice.

Executive M.P.H. in Health Services Management

This is a weekend program for working professionals offered through the Division of Health Policy and Management. The Executive M.P.H. is a structured program in which the School's core curriculum and concentration courses are prescheduled and taught on one weekend a month, Thursday through Sunday, over a set period of two years. There are special admission and fee arrangements. Admission is in the fall only. Further information can be found under *Academic Programs in Health Policy and Management*.

Master of Science (M.S.)

see also *Academic Programs*:

Biostatistics
Epidemiology

The M.S. is a specialized degree that gives students opportunities to develop special skills and expertise in the selected subject area.

The student must complete a minimum of 30 academic points. Requirements for coursework, master's essay, and any practical experience needed for the degree vary with the particular program of study. Further information is given under *Academic Programs in Biostatistics and Epidemiology*.

Doctor of Public Health (Dr.P.H.)

see also *Academic Programs*:

Biostatistics
Environmental Health Sciences
Epidemiology
Health Policy and Management
Sociomedical Sciences

The Dr.P.H. degree program is designed for professionals wishing to prepare for teaching, research, or advanced administrative positions in a major area of specialization within the broad field of public health. The degree program is administered by a standing doctoral committee of the School, which carries out faculty policy on admission to the doctoral program and upholds the criteria for granting the degree.

All candidates for the Dr.P.H. degree must have earned the M.P.H. degree or its equivalent. Applicants admitted with other master's or doctoral degrees are usually required to take a number of *predoctoral* public health courses, including the School's core courses. In considering applicants for admission for doctoral work, faculty consider records of academic ability and professional accomplishments and evidence of the applicant's potential to realize expressed goals. Personal interviews may be required before acceptance. Applicants whose M.P.H. degree was earned at a university other than Columbia must take the Graduate Record Examination (GRE).

The Dr.P.H. degree calls for completion of an approved program of study totaling no fewer than 40 doctoral points of credit beyond the M.P.H. level, with individual programs reviewed by Divisions. At a minimum, the candidate is required to spend the equivalent of two terms of full-time coursework (30 points) in residence. Upon completion of coursework, a student is permitted to register for 2 of the required 10 points of doctoral research instruction before passing the qualifying examinations. These examinations are administered by the Division or program in which the student is working. On successful completion, the student registers for the additional required points of doctoral research instruction credit and develops, writes, and submits an acceptable doctoral dissertation that presents the results of independent and original work.

The completion of doctoral coursework, qualifying examinations, and the dissertation can be expected to take at least three full-time academic years and, in most cases, can extend beyond that. There is a University time limit of seven years from the date of first registration as a doctoral student until completion of all requirements.

A Dr.P.H. degree, administered across two Divisions, is possible with the endorsement of both Divisions.

Doctor of Philosophy (Ph.D.)

see also *Academic Programs*:

Biostatistics
Environmental Health Sciences
Epidemiology
Sociomedical Sciences

These interdisciplinary Doctor of Philosophy programs are under the academic supervision of subcommittees of the Graduate School of Arts and Sciences which bring together faculty from Public Health, Arts and Sciences, and other appropriate schools and departments of the University.

Requirements for admission to the Graduate School of Arts and Sciences include a bachelor's degree with at least 90 points of credit in the liberal arts and sciences. Application to the programs is through the Graduate School Admissions Office on the Morningside campus. Applicants may call (212) 854-4737 and may also download a Ph.D. application over the WorldWide Web (<http://www.columbia.edu/cu/gsas/download.html/>).

General information on these Ph.D. programs is contained in the bulletin of the Graduate School of Arts and Sciences. However, applicants are strongly encouraged to contact the Divisions of Biostatistics, Environmental Health Sciences, Epidemiology, or Sociomedical Sciences in the Mailman School of Public Health for specific information on admissions criteria and program requirements.

Dual Degree Programs

The Mailman School of Public Health cooperates with other Columbia University schools in offering master's level degree programs that provide an interface between public health and related fields. Dual degree programs take advantage of overlapping content in these related areas to reduce the time needed to complete the degrees.

The number of total points required for dual degree programs varies within each, but in all cases is fewer than if the two separate degrees were pursued independently.

Application. Applicants seeking admission to dual degree studies must apply separately to the two collaborating schools and must meet the admissions requirements of each. Once both schools grant admission to their individual degree programs, the student may begin an integrated program. Therefore, students considering dual degree programs are strongly encouraged to apply to both schools as early as possible. Except where otherwise noted, students may apply to both schools at the same time, or may apply to the second school after admission to the first school. Both schools should be notified that the applicant is requesting admission to a dual degree program.

Registration and Tuition. Enrollment in a dual degree program requires special attention and planning to ensure that all requirements are met regarding both completion of academic requirements and tuition payment. Students register in only one school at a time (*school of primary registration*) and pay tuition to that school. However, students can add flexibility to their schedules by cross-registering in any one semester to combine studies from both schools. Registration continues in either school until all academic requirements (coursework, practicum, and medical background

exam in the Mailman School) have been met and the student has registered for the number of terms or points required by each school. In most, but not all programs, students may begin in either school. Advisors are appointed in each school and should be consulted as soon as the student begins studies so that an appropriate balance and time sequence are achieved.

The student's financial aid award will be made through the school of primary registration. Students who apply for aid are cautioned to consult with financial aid officers well before the beginning of the academic year to ensure that they are covered in each semester by their school of primary registration.

Additional information on these programs may be obtained from the Office of Student Services, Mailman School of Public Health, and the other schools and programs involved.

PUBLIC HEALTH AND MEDICINE

This dual degree program, under the direction of the Mailman School and the College of Physicians & Surgeons, is intended for Columbia University medical students who have an interest in the social and community aspects of medical care and health management. Its objective is to prepare physicians for an expanding range of opportunities and roles in health and medical care. In addition to preclinical and clinical medical training, students gain substantive knowledge of the health care delivery system and the technological, social, and political forces contributing to patterns of illness and health care. Graduates of the dual program are prepared for careers that combine clinical practice with research and/or administration in public or private sector health care delivery and community health improvement.

Before being considered for admission to the Mailman School with dual degree status, the applicant must first be accepted as an M.D. degree candidate in the College of Physicians & Surgeons. In addition to meeting all requirements for the M.D. degree, students take 35 points in Public Health. Registration and scheduling patterns, and the overall length of the dual program, vary among individual students. The M.D. and M.P.H. degrees usually are awarded simultaneously at the end of the fourth year, but the degrees may be awarded separately if a longer time is needed to meet one set of requirements.

Macy Scholars: In addition to the program described above, another dual degree option is now available to a limited number of students in the College of Physicians & Surgeons and other medical schools in the New York area. A **Macy Foundation Scholarship Program** provides scholarships for the Master of Public Health component of the M.D./M.P.H. dual degree. Recipients of Macy Scholarships will complete a 45-point Master of Public Health (M.P.H.) degree, offered as a *fully funded fifth year* of study, to be taken at the end of the third year of medical school. Further information regarding the Macy Scholarship Program and application to the Mailman School can be obtained by calling the Program coordinator, (212) 305-3934. To be eligible for the scholarship, medical students must be enrolled in one of the following schools and must be recommended for the program by their Associate Dean for Academic Affairs:

Columbia University College of Physicians & Surgeons
 Albert Einstein College of Medicine
 Joan and Sanford I. Weill Medical College of Cornell University
 New York University School of Medicine
 Sophie Davis School of Biomedical Education/CUNY
 SUNY Brooklyn

PUBLIC HEALTH AND DENTISTRY

This dual degree program is organized and directed by the Mailman School and the School of Dental and Oral Surgery. In addition to clinical dentistry, students gain broad insights into the complexities of the evolving health care delivery system in the United States and develop the skills to assume roles as implementers and leaders within that system. The program is a major step in the education of interdisciplinary professionals who can be effective as practitioners and interpreters at the interface between dentistry, other health disciplines, and the health system.

For admission to the dual program, a student must first be accepted as a D.D.S. degree candidate in the School of Dental and Oral Surgery. Each degree is awarded independently when the respective requirements have been met. An early commitment is advisable; however, students can enter the program at any time during the first two and one-half years and have up to two years after dental school graduation to complete the required 35 points of credit for the M.P.H. degree.

PUBLIC HEALTH M.S. AND MEDICINE OR DENTISTRY

This program is available to students enrolled in the medical and dental schools of Columbia University, as well as other universities. It is a 60-point program that provides the advanced management skills needed for leadership roles in planning, policy making, and managing health care organizations. It provides opportunities for students to become well grounded in management science, health economics, financial management, medical care organization, and public health.

PUBLIC HEALTH AND NURSING

The Mailman School and the School of Nursing offer a dual program for the M.P.H. degree and the M.S. degree in Nursing. The primary purpose of this interdisciplinary program is to prepare nurse practitioners or clinical specialists to function effectively as health practitioners in the community, helping to interpret, plan, and/or administer programs. This program is directed toward nurses with at least one year of appropriate experience who expect to be practicing clinicians and at the same time hold responsible administrative positions, or who plan a career in clinical nursing but desire to enhance their clinical knowledge with a related public health concentration. The minimum number of points of credit required is 75. Distribution of points between the two schools varies with the clinical track selected, but students complete at least 30 points in each school. Both degrees must be awarded simultaneously.

PUBLIC HEALTH AND OCCUPATIONAL THERAPY

The Mailman School and the Program in Occupational Therapy of the Faculty of Medicine offer a dual program for the Master of Public Health and Master of Science (M.S.) in Occupational Therapy. The program is designed to prepare occupational therapists for leadership roles in shaping the health policies of America's increasingly complex health care delivery system. An understanding of public health principles helps students to transfer their clinical skills to community-based services and to assume policy and administrative positions in school systems, businesses, and national and state agencies concerned with health policies and practices. The dual degree program interfaces with the existing two programs in Occupational Therapy at the professional (entry) level and the postprofessional (advanced) level. The M.S./M.P.H. program is an option for students at both levels, on a full- or part-time basis. The total number of points of credit required for

the dual degree is 90 for entry level (professional), including 38 in Public Health; and 72 for the advanced level (postprofessional) Occupational Therapy Program, including 40 in Public Health.

PUBLIC HEALTH AND BUSINESS

Available to students in Health Policy and Management, this program offers a balanced and challenging course of study in the social, economic, and political facets of public health and health administration practices, along with rigorous quantitative training in management. The program is designed to prepare individuals for administrative positions in the health care industry, including hospitals, consulting firms, etc., that require sound management and a broad knowledge of public health. The total number of points required is 80—35 in Public Health and 45 in Business.

PUBLIC HEALTH AND INTERNATIONAL AFFAIRS

The purpose of the dual degree program combining the Master of Public Health and the Master of International Affairs (M.I.A.) is to provide training for careers in international and national agencies involving health policy analysis and/or administration. The emphasis of the School of International and Public Affairs on political and economic aspects of various world regions complements many areas of public health. The minimum number of points required is 75, with at least 30 points of registration in each school.

PUBLIC HEALTH AND PUBLIC ADMINISTRATION

The purpose of the dual degree program combining the Master of Public Health and the Master in Public Policy and Administration (M.P.A.) is to train men and women for careers in health policy analysis and administration and for positions in local, state, and federal governments and in the private sector. The total number of points required is 75, with a minimum of 30 points of registration in each school.

PUBLIC HEALTH AND SOCIAL WORK

The nature and extent of today's health problems, and the alternatives available for their solution, involve political, economic, community, organizational, behavioral, and other social issues. This dual degree program with the School of Social Work permits students to develop orientation and skill in both social work and public health. Generally, students enrolled as degree candidates in either school, who wish to apply to the dual program, should do so no later than the end of the second term of registration. Ideally, students should begin their studies in Social Work, the foundation program for this dual degree. Once they have covered the fundamentals of professional social work practice, they can begin integrating a public health perspective and skills into their fieldwork and further studies in both schools. The total number of points required is 90—45 in Public Health and 45 in the Social Work M.S. program.

PUBLIC HEALTH AND URBAN PLANNING

The Mailman School and the Graduate School of Architecture, Planning, and Preservation offer a dual program for the degrees of Master of Public Health (M.P.H.) and Master of Science (M.S.) in Urban Planning. The primary objective of this dual degree program is to prepare individuals for *planning* positions in health systems agencies, various units of government, and the private health sector. The total number of points required is 80—35 points in Public Health and 45 in Urban Planning.

ACADEMIC PROGRAMS: INTRODUCTION

This section of the Bulletin should be read in conjunction with the preceding section on Degree Requirements.

Although the subjects dealt with in the programs described in this section are related, the educational objectives, admissions criteria, and academic requirements differ significantly among Divisions. While all Divisions offer master's level study, several also train doctoral candidates.

Primary responsibility for developing the programs of study rests with the faculty, although student participation in curriculum planning and evaluation is considered essential.

Course Information

GENERAL

Courses are reviewed and new courses approved throughout each academic year. Courses are grouped in this Bulletin under Division or Program to provide a general guide to the perspective from which the course is taught.

The University reserves the right to withdraw, add to, or modify the courses of instruction or to change the instructors or scheduling at any time.

KEY TO COURSE NUMBERS

Each course number consists of the capital letter "P" followed by four digits.

The first digit indicates the level of the course, as follows:

- 6 Master's level course
- 8 Advanced master's or doctoral level course
- 9 Doctoral level course or seminar

The second digit indicates the subject area of the course:

- 0 General public health
- 1 Biostatistics
- 3 Environmental health sciences
- 4 Epidemiology
- 5 Health policy and management
- 6 Population and family health
- 7 Sociomedical sciences
- 9 Doctoral research

The last two digits identify that particular course.

TERM DESIGNATIONS

The academic year is divided into three terms, fall, spring, and summer. Fall and spring courses meet for 14 weeks, usually with one class meeting per week. The summer term is composed of two

intensive summer sessions of six weeks each. In the fall and spring, a few courses are given for quarter (half-term) periods.

POINTS OF COURSE CREDIT

The number of points that a course carries appears after the title of the course in the sections that follow. Most courses carry 3 points.

TUTORIALS

Students may have an interest in an area or specific topic that is not addressed in the curriculum. A tutorial (independent study), which is a learning contract between a student and faculty member to explore an area of mutual concern, is intended to provide opportunities for specialized study. Tutorials are offered by every Division and are available for 1 or more points per semester. Before registering for a tutorial, the student must first obtain the approval of the sponsoring faculty member.

This *Academic Programs* section of the Bulletin contains a description of the total curriculum of each Division/program. However, not all courses are given every year. The specific courses offered are listed in a semester course schedule prepared and distributed each term through the Office of Student Services.

Registration

After getting program approval from their academic advisor, and course permission from Divisions where appropriate, students register for Public Health courses by touch-tone telephone at the beginning of each term. Registration dates appear in the *Academic Calendar* in this Bulletin; the Office of Student Services will alert all students to any changes in these dates.

All students are asked to give Social Security numbers when registering in the University. International students will have one term in which to secure a valid U.S. Social Security number. Instructions for obtaining a Social Security number are available in the Office of Student Services.

Students who are not citizens of the United States and who need authorization for special billing of tuition and/or fees to foreign institutions, agencies, or sponsors should bring a copy of the sponsorship letter to the Office of Student Administrative Services. Special billing authorization is required of students whose bills are to be sent to a third party for payment.

Cross-registration

Registration for students enrolled in Public Health for courses taken in other schools of the University is done in person during the change-of-program period. School/instructor permission is required. Completed forms must be brought to Registration Services, 1-141 Black Building, during the change-of-program period. Courses taken at Teachers College (TC) will be charged at the TC tuition rate.

Students whose primary registration is in a school of the University **other** than the Mailman School must have the permission of the instructor and the Dean's Office for all courses to be taken at the Mailman School and must complete a cross-registration form available in the Office of Student Services. Cross-registrations cannot be done by telephone.

Changes in Programs of Study

Once registered, a student may with approval add or drop courses by touch-tone telephone during the change-of-program period (see *Academic Calendar*).

After the change-of-program period students may drop courses by following the same procedure and obtaining approval of both their advisor and the Dean's Office. However, for individual courses dropped after the last day of the change-of-program period, no adjustment of tuition will be made. There is also a date in the *Academic Calendar* after which courses may not be dropped.

Failure to attend classes or unofficial notification to the instructor does not constitute dropping a course and will result in a grade of UW (unofficial withdrawal). Courses can be dropped only through the change-of-program procedure described above.

Practicum and Doctoral Instruction Registration

PRACTICUM (PRACTICAL EXPERIENCE)

The practical experience requirement for the M.P.H. degree is generally equivalent in duration to one term of full-time work. It may take a variety of forms: an administrative residency in an institution or agency (usually for a period exceeding one term); participation in an ongoing research or evaluation project; or designing and conducting an independent study. Arrangements are made on an individual basis in consultation with faculty advisors in the student's field of concentration. Students are expected to submit written reports at the conclusion of the practicum. While completing the practicum a student registers for *Public Health P0001* (0 points), and is charged tuition at the 1-point rate.

Students who have appropriate experience in the public health field may meet the practicum requirement through prior professional experience. A letter outlining this experience should be submitted by the student to his/her academic advisor for review and recommendation to the Dean's Office.

DOCTORAL RESEARCH INSTRUCTION

Each candidate in the Dr.P.H. degree program must complete 10 points of *Doctoral Research Instruction* before submitting the dissertation. This requirement is met by registering for *Public Health P9980*. In exceptional circumstances, and with the recommendation of an advisor and permission of the Dean's Office, credits earned in a carefully selected course may be counted toward the Doctoral Research Instruction requirement.

Registration in *P9980* may begin only after completion of the course requirements for the degree. *Only 2 of these points may be taken before satisfactory completion of the qualifying examinations.* Candidates may register for 1 or more doctoral research points each term until 10 points have been completed. Registration permits the student to have access to library and other University resources while working on the dissertation.

Grades

The School uses a letter grade system. Grades are: **A, B, C**, with + and – as applicable, **F, IN** (Incomplete), **R** (Registered), and **UW** (Unofficial Withdrawal). A pass/fail (**P/F**) grade option is available in some circumstances. Grades are defined as follows:

Excellent:

- A+ Reserved for highly exceptional achievement.
- A Excellent. Outstanding achievement.
- A– Excellent work, close to outstanding.

Good:

- B+ Very good. Solid achievement expected of most graduate students.
- B Good. Acceptable achievement.

Fair:

- B– Acceptable achievement, but below what is generally expected of graduate students.
- C+ Fair achievement, above minimally acceptable level.

Minimally Acceptable:

- C Fair achievement, but only minimally acceptable.
- C– Very low performance. The records of students receiving such grades are subject to review by the Academic Standards Committee.

Failure:

- F Failure. Course usually may not be repeated unless it is a required course. When the course is required, the student will re-register and obtain a satisfactory grade. The previous grade remains on the transcript.

Registered: R

The grade of **R** (Registered) credit is automatically assigned for *Doctoral Research Instruction (Public Health P9980)* and is an option for auditing other courses. Except for *Doctoral Research Instruction*, courses graded **R** do not count toward the course points needed to meet degree requirements. All **R** credit courses require full tuition payment.

Incomplete IN and Unofficial Withdrawal UW:

There is no automatic grade of "Incomplete" (IN). Students are expected to complete ALL course assignments and exams on schedule by the end of a semester.

An Incomplete (**IN**) may be given only when a student has met the attendance requirement but certain course assignments have not been completed for reasons satisfactory to the instructor. The instructor may grant an extension, usually for a specified period of time, and usually not more than several weeks. If the outstanding work is not completed within one calendar year from the date of the close of the term in which the Incomplete was received, the grade will automatically convert to Unofficial Withdrawal (**UW**).

Unless there is notification of change of grade from **IN** to a letter grade or **P/F** within one year from the end of the semester of registration, the **IN** will automatically be converted to Unofficial Withdrawal (**UW**), defined as “student did not complete attendance and/or assignments, but failed to withdraw.”

Pass/Fail Option:

Some courses, at the discretion of the instructor and according to course content, are graded only on a pass/fail (**P/F**) basis. The **P/F** option may also be elected by students in a few selected courses (not to exceed 15 points total for M.P.H. students) with permission of the instructor and the student's advisor. This option was designed to permit students to register for credit in courses relevant to, but outside of, their area of study. **The pass/fail option is not available for core courses and normally not available for required Division courses.**

In addition to the letter grade, qualitative forms of evaluation to assist the student in the learning process include the instructor's written or verbal comments on papers, exams, and presentations, dealing with the strengths and weaknesses of the performance, and suggestions for improvement.

Reporting of Grades: Students may obtain their grades either by phone (854-7373), using the Personal Identification Number (PIN) assigned to them by the University, or by computer terminal with links to ColumbiaNet, the University's electronic information system. Prior to each term, students' academic records will be available to the faculty advisors for counseling purposes. Grades of **F** (Fail) or **IN** (Incomplete) are reported to the Academic Standards Committee of the School.

Grievance Procedure

Questions about a course grade should be discussed first with the course instructor, and then with the Division or program head if necessary. In the case of a serious unresolved disagreement between a student and instructor concerning grades, an *ad hoc* committee of three faculty members is appointed by the Dean of the School. The committee reviews the case with the instructor, and with the Dean when appropriate.

Academic Standing

Students are expected to maintain satisfactory academic standing at all times. A student's work in individual courses and in the program as a whole is reviewed regularly by the Office of the Dean and the student's faculty advisor. In cases where a student's academic standing is in question, a review is conducted of the student's record and circumstances to determine appropriate action.

The Mailman School reserves the right to dismiss any student, or to deny admission, registration, readmission, or graduation to any student, who in the judgment of the Faculty of the School is determined to be unsuited for study or practice of Public Health.

Honor Code

In 1978 the School adopted an Honor Code relating to student/faculty responsibilities in assuring academic integrity. Copies of the Honor Code are distributed to all new students upon acceptance to the School and again when they first register, and are available at all times in the Office of Student Services.

The Code describes the School's standards for coursework, assignments, and examinations. In all academic work, students must submit original material only; provide proper citations when paraphrasing or quoting from other sources; and discuss with the instructor in advance any plan to depart from these standards—for example, seeking editorial assistance or submitting the same or similar material used to meet requirements for another course.

Public Health practice and research requires the highest degree of responsibility and integrity. *Violations of the Honor Code are viewed very seriously by the School.*

Requests for Transcripts

The Family Educational Rights and Privacy Act of 1974 as amended prohibits the release of educational records by institutions without the specific written consent of the student or alumnus. Students or alumni may request copies of their records by writing to the Office of Student Administrative Services, Room 141, Black Building, 650 West 168th Street, New York, NY 10032. Currently enrolled students may also request transcripts through the WorldWide Web—information can be obtained from Registration Services at 305-3992.

Transcript requests are processed in the order received and require five to seven working days for processing. Specific deadlines should be mentioned. Students are charged a one-time transcript fee of \$45 when they enter the School. This entitles them, as continuing students and alumni, to obtain transcript copies at no additional charge.

Graduation

DEGREE APPLICATION

Degrees are awarded three times a year—in October, February, and May. A candidate for a Public Health degree must file an application which requires the signature of his/her academic advisor. The application form is available from the Office of Student Services. The last day to file for each degree is:

August 1—October degree
December 1—February degree
February 1—May degree

Applications received *after* these dates will automatically be applied to the next conferral date.

If the student is unable to complete degree requirements by the conferral date for which he or she has made application, the student must file another application.

GRADUATION CEREMONIES

The University and the School hold Commencement exercises in May for all those who have earned their degrees during the current academic year. In early spring, all the October and February graduates, and all students anticipating a May degree, will be sent information directly in preparation for these events.



BIOSTATISTICS

Degrees offered:

M.P.H., M.S., Dr.P.H., Ph.D.

DIVISION OF BIostatISTICS

622 West 168th Street, 18th Floor
New York, NY 10032
(212) 305-9398

Professor and Acting Division Head

Bruce Levin

(in the Sergievsky Center) B.A., Columbia, 1968; M.A., Harvard, 1972; Ph.D., 1974

Professors

Shaw-Hwa Lo

(also Statistics) B.S., National Taiwan University, 1975; M.A., California (Santa Barbara), 1978; Ph.D., California (Berkeley), 1981

Paul Meier

(also Levene Professor of Statistics) B.S., Brown, 1945; M.A., Princeton, 1947; Ph.D., 1951

Wei-Yann Tsai

B.S., National Chung-Kung University (Taiwan), 1974; M.S., New Brunswick, 1978; Ph.D., Wisconsin (Madison), 1982

Professor of Clinical Public Health

Susan E. Hodge

(in Psychiatry) B.A., Antioch, 1968; D.Sc., Washington, 1976

Associate Professor

Daniel Heitjan

B.S., Chicago, 1981; M.S., 1984; Ph.D., 1985

Associate Professors of Clinical Public Health

Melissa D. Begg

B.S., Fairfield, 1985; Sc.D., Harvard, 1989

Myunghae Cho Paik

B.S., Seoul National, 1981; M.S., Pittsburgh, 1984; Ph.D., 1987

Christine Waternaux

Maitrise, University of Paris, 1971; Ph.D., Yale, 1975

Priya J. Wickramaratne

(in Psychiatry) B.S., London, 1968; M.S., Stanford, 1970; Ph.D., Yale, 1984

Assistant Professor

Ming X. Tang

(in the Sergievsky Center) M.A., City University of New York (Hunter), 1985; M.Phil., Columbia, 1989; Ph.D., 1990

Adjunct Assistant Professor

Donald C. Ross

B.A., Rochester, 1955; M.A., North Carolina, 1957; Ph.D., 1960

Assistant Professors of Clinical Public Health

Emilia Bagiella

(in Psychiatry and in the Irving Comprehensive Cancer Center) Laurea, LaSapienza, 1985; M.S., Columbia, 1993; Ph.D., 1997

Yuling E. Du

B.S., Science & Technology (China), 1993; Ph.D., Penn State, 1999

Xinhua Liu

(in Psychiatry) Ph.D., Johns Hopkins, 1991

Michael K. Parides

M.S., Columbia, 1986; Ph.D., 1995

Eva Petkova

(in Psychiatry) M.S., Sofia University, 1982; Ph.D., Pennsylvania State, 1992

Andrea Troxel

(in the Irving Comprehensive Cancer Center) B.S., Yale, 1991; Ph.D., Harvard, 1995

Assistant Clinical Professor

Alan D. Weinberg

B.S., Rutgers, 1975; M.S., Columbia, 1991

Research Scientist

John L. P. Thompson

(also Neurology) B.A., Cambridge University, 1971; M.A., 1974; M.A., UCLA, 1974; Ph.D., 1979

Lecturer

Mark Davies, M.P.H.

EXAMPLES OF FACULTY AREAS OF EXPERTISE

Application of statistics in public policy, in medical experiments, and in legal proceedings; clinical trials; statistical data analysis; experimental design; nonparametrics; logistic regression; survival analysis; resampling methods; statistical methods in epidemiology; mental health statistics; statistical computing.

Objectives

The discipline of biostatistics is concerned with the development and use of statistical methodology for various kinds of quantitative studies in biology, medicine, and health. Biostatistical skills are necessary in research design, collection and organization of data, analysis, and final presentation of results. The methodology is derived largely from the fields of applied mathematics and probability.

Individuals entering the field of biostatistics come from diverse backgrounds. Some are mathematicians, some have majored in the natural or social sciences, and others are professionals in such areas as medicine or dentistry. All should have a background in the sciences, with adequate preparation in mathematics. A knowledge of calculus is needed for all programs. Most important is an affinity for quantitative methods, and intuition and common sense in working with quantitative material.

Those trained in biostatistics are most often employed in city, state, and federal health agencies; hospitals; the health insurance industry; the pharmaceutical industry; and in academic research settings. Excellent employment opportunities exist for students in all degree programs.

Master of Public Health (M.P.H.)

The educational objective of the M.P.H. degree concentration in biostatistics is to provide a background in quantitative methods in the course of the student's public health training. This program is intended primarily for public health specialists who wish to use and adapt statistical procedures for health and medical care programs, or wish to serve in a technical capacity as resource persons and collaborators in field and programmatic studies. Students interested in a career as a biostatistician are advised to consider the M.S. degree (see below).

All students are required to take the five Public Health core curriculum courses and four required biostatistics courses for a total of 27 points. Biostatistics majors are required to take *Public Health P6104* for their Biostatistics core course. Students also select six electives, three of which must be biostatistics electives, for a total of 45 points.

Courses in biostatistics provide an introduction to statistical methodology and experience in statistical procedures. Students explore the applications of these procedures to the field of public health. Courses are selected on an individual basis in accord with the background, interests, and career goals of the students, and in consultation with faculty advisors. Courses in statistical methodology cover such areas as applied probability theory, vital statistics, life table methods, regression analysis, and categorical data analysis. For applications of biostatistics to the field of public health, students select courses from the public health curriculum relating to such areas as research techniques in health administration, design and analysis of epidemiological studies, evaluation of health programs, and methods of demographic analysis.

Master of Science (M.S.)

THEORY AND METHODS TRACK

The M.S./Theory and Methods degree program of the Division of Biostatistics is designed primarily to prepare individuals to work effectively as biostatisticians in a variety of biomedical, clinical, and laboratory research settings. It is the appropriate degree

program for a student whose goal is to pursue a career as a biostatistician, or for a student who wishes to go on to a doctoral program in biostatistics. Candidates for admission may come from medical and nonmedical fields. Applicants must present evidence of adequate preparation in quantitative skills. While formal courses in statistics are not required, students are encouraged to have or obtain a working knowledge of calculus and linear algebra. Students with strong scores on the quantitative section of the Graduate Record Examination (GRE) are given first preference.

Candidates for the M.S. in biostatistics are expected, when they graduate, to have mastered certain mathematical and biostatistical concepts and techniques as represented by the courses listed below. This goal is achieved by taking relevant courses in mathematics and statistics given on the Morningside campus, and introductory and advanced courses in biostatistics at the Mailman School. Students who have mastered an academic area through previous training will have the corresponding course requirement waived. Some students, such as those with undergraduate majors in statistics or mathematics, may have several courses waived; these students must complete a minimum of 30 points to earn the M.S. degree. Students with little background in statistics may have to take as many as 42 points.

CLINICAL RESEARCH METHODS TRACK

The purpose of the M.S./Clinical Research Methods (M.S./C.R.M.) degree program is to provide formal, rigorous training in skills critical to the design and analysis of clinical research studies. It is intended for physicians, nurses, dentists, pharmacists, and other health care professionals who plan careers or are actively engaged in clinical research. It is not the recommended degree for candidates preparing for a career in statistics; the M.S. in Biostatistics, Theory and Methods track, which places greater emphasis on theory and foundations of statistical analysis, is the appropriate degree for career statisticians.

Through specially focused coursework and a supervised research project, candidates for the M.S./C.R.M. degree will hone their quantitative talents to better pursue research objectives in their chosen fields. As the level of competitiveness for limited research support increases, a study that fails to meet expectations with regard to basic principles of clinical investigation will fare poorly compared to a well-designed study with a strong analytic plan. Mastery of applied biostatistical methods can only serve to improve the likelihood of assembling a compelling and effective clinical research project.

Applicants to the program should hold or anticipate completion of advanced degrees in a clinical discipline or public health. Their undergraduate curriculum should include a year-long course in calculus. Demonstrated quantitative ability, as measured by good scores on the quantitative and analytic portions of the Graduate Record Examination (GRE), is desirable.

PATIENT ORIENTED RESEARCH TRACK

The Patient Oriented Research track in the Master of Science in Biostatistics (M.S./P.O.R.) program at Columbia is a strong, broadly based didactic training program that will prepare young researchers for independent careers as clinical scientists. In response to calls from the National Institutes of Health for improved training of clinical researchers in academic medicine, Columbia has mounted a formal, joint endeavor among faculty from the schools of public health, medicine, nursing, dentistry, and the arts and sciences. The program is comprised of a multidisciplinary series of courses and

colloquia that reflects both the public health faculty's expertise in design and conduct of research studies and the clinical faculty's intimate knowledge of human health and patient care. The purpose of the Patient Oriented Research track is to provide specific training in the fundamentals of clinical investigation, with a view to enabling clinical investigators to compete more effectively for research funding.

The M.S./P.O.R. curriculum consists of 30 points in total, including 21 points of required coursework, 3 points toward a master's essay, and 6 points of elective coursework. Compared to the M.S./C.R.M. program, the Patient Oriented Research program is broader in scope and places less emphasis on quantitative methods in research. Candidates for the M.S./P.O.R. receive formal training in the design of clinical research studies, laboratory methods for measurement of clinical indicators, conduct of observational and randomized studies, applied statistical methods, standards for scientific conduct, pursuit of research funding, critical review of the literature, and molecular pharmacology. While the curriculum is designed to provide an introduction to a broad array of topics, candidates are free to choose two elective courses during their training period, thereby affording them the opportunity to develop expertise in a particular specialty area (e.g., quantitative methods, genetics, or epidemiologic methods). As part of Patient Oriented Research training, each student is required to complete a master's essay consisting of the construction of an NIH-style grant application. The student will be supervised by a project sponsor from Biostatistics and by a clinical mentor from the student's own clinical field.

Candidacy in the P.O.R. track is open to individuals who hold any of the following doctoral degrees: M.D., D.D.S., D.M.D., D.O., D.C., N.D., or D.N.Sc. Ph.D.'s who want to become involved in clinical research may also be eligible. All candidates must be engaged in either direct care of, or research with, patients. Proof of quantitative and analytic ability, as evidenced by good scores on the Graduate Record Examination (GRE) or the Medical College Admission Test (MCAT), is required.

A limited number of full tuition scholarships are available to highly qualified candidates. Those six applicants ranking highest among all admitted candidates in a given year will be offered P.O.R. scholarships for two years of study, covering up to 30 points of coursework and research.

Practicum Requirement (M.P.H. and M.S.)

One term of practical experience providing educational opportunities that are different from, and supplementary to, the more academic aspects of the program is required of all M.P.H. and M.S. students. Some examples of how students have fulfilled this requirement in the past are participation in a faculty member's research project, working in the pharmaceutical industry or the New York City Department of Health, or through an internship with the Centers for Disease Control and Prevention.

Doctor of Public Health (Dr.P.H.)

The Doctor of Public Health degree is designed for persons who wish to apply state-of-the-art statistical methods to the solution of important public health problems. Well-qualified students are admitted to the program if they already possess the Master of Public Health or its equivalent, with substantial coursework in biostatistics. The Doctor of Public Health degree calls for completion of an approved program of study totaling not less than 40 doctoral points. Thirty of these points are devoted to coursework

and the remaining 10 are research units. The coursework may be completed on a part-time basis. Upon completion of a minimum of 30 points of coursework, the student sits for written qualifying examinations, one covering statistical theory and the other the practical analysis of data. Upon successful completion of these examinations, the student begins intensive study of a specific public health research problem that requires sophisticated statistical analysis, and writes a twenty-page paper reviewing the problem and the attempts that have been made to address it. This paper is the basis of an oral examination, which is the third and final qualifying examination before dissertation research begins. The dissertation topic, which is usually but not always the same as the one chosen for the oral qualifying examination, must represent a problem in health that can be addressed by the sound and original application of existing statistical methods. The methods themselves need not be original. After the dissertation is successfully defended, the doctoral degree is awarded. The typical time needed to earn the Dr.P.H. on a full-time basis is four years.

Doctor of Philosophy (Ph.D.)

The Ph.D. is awarded by the Graduate Faculty of Arts and Sciences rather than the Mailman School of Public Health. The Biostatistics Ph.D. degree program is overseen by a standing subcommittee of the Graduate Faculty comprised of faculty from both the Division of Biostatistics and Columbia's Morningside campus. The Ph.D. requirements are similar to those for the Dr.P.H., except the examinations and the dissertation involve relatively more emphasis on mathematics and less on public health applications. Students are typically admitted to the Ph.D. program after they have earned the M.S. in Biostatistics. Doctoral students are required to take *Public Health P9109-P9110 Theory of statistical inference. (Statistics G6105 Probability is strongly recommended, but not required.)* This coursework prepares students for a written qualifying exam required in order to receive the M.Phil. degree. This examination is administered by the Department of Statistics in the Graduate School of Arts and Sciences as part of their doctoral program requirements. Ph.D. students in Biostatistics take many advanced courses from the Department of Statistics, in addition to courses offered in the Division of Biostatistics. After passing the written qualifying examination, Ph.D. students begin intensive study of a class of statistical procedures that have relevance to a specific problem in biomedical research. Using this study, they write a twenty-page paper reviewing the literature, which defines the context for a two-hour oral examination. The oral examination also probes the student's understanding of theoretical statistics, as well as the problem under review.

Students passing these qualifying examinations receive the M.Phil. degree and then pursue their dissertation research.

The Ph.D. dissertation must represent an original contribution to statistical theory or method that has relevance to a real biomedical application. With proper advising, a Ph.D. student should be able to finish the degree five years after receiving the master's degree. Further information on admissions criteria and program requirements may be obtained from the Division of Biostatistics. Application is made through the Graduate School of Arts and Sciences; applicants may call (212) 854-4737 and may also download a Ph.D. application over the WorldWide Web (<http://www.columbia.edu/cu/gsas/download/html/>).

Course Descriptions

Note: Many courses require permission of the instructor/Division as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Services identifies courses that require permission prior to registration.

P6100 Introduction to vital statistics

1 point.

Mass data of the health fields; the content of vital statistics; methods of collecting, tabulating, and graphing data; elementary methods of analyzing some of the simpler types of data in terms of averages, percentages, and rates. Direct and indirect standardization.

The Biostatistics core course requirement for the M.P.H. degree can be met through either *P6103* or *P6104*; students must consult with their advisor to determine which course is required by their Division/program.

P6103 Introduction to biostatistics

3 points.

This course covers the language of biostatistics and the standard techniques of data collection and analysis. Topics include those discussed in *Public Health P6100* plus summarization of experimental, observational, and population level data by means of percentages, averages, and measures of variation; methods for evaluating the role of chance variation; introduction to the concepts of correlation and regression.

P6104 Introduction to biostatistical methods

4 points.

An enriched core course for students majoring in biostatistics and others who expect to take additional courses in biostatistics such as *Public Health P8100*, *P8111*, *P8120*, or *P8129*. It covers in greater depth all of the topics in *P6103* and is the best preparation for students anticipating a quantitative orientation in their degree programs. Topics covered include standard distributions, measures of central tendency and dispersion, hypothesis testing, point estimation, confidence intervals, and an introduction to correlation and regression.

P6105 Introductory probability with statistical applications

3 points.

Corequisite: *Public Health P6104*. Intended for M.P.H. students concentrating in biostatistics and for other students likely to take advanced courses in biostatistics. Develops probability models for discrete and continuous variables, and illustrates their applications to inferences about contingency tables, to nonparametric problems, and to estimation using maximum likelihood.

P6110 Statistical and computer methods in health data

3 points.

Uses of the computer in cleaning, summarizing, and cross-classifying data. Expansion of the material covered in *Public Health P6103*—regression, correlation and contingency table

analysis, and the analysis of variance—with data analysis carried out using standard statistical packages.

P8100 Applied regression analysis

3 points.

Prerequisite: *Public Health P6104*. The study of linear statistical models. Regression and correlation with one independent variable. Partial and multiple correlation. Multiple and polynomial regression. Single factor analysis of variance. Simple logistic regression.

P8104 Probability

3 points.

Prerequisite: *Public Health P6104*. Suggested preparation: *Working knowledge of calculus*. Fundamentals, random variables, and distribution functions in one or more dimensions; moments, conditional probabilities, and densities; Laplace transforms and characteristic functions. Infinite sequences of random variables, weak and strong large numbers; central limit theorem.

P8108 Survival analysis

3 points.

Prerequisite: *Public Health P6105* or the equivalent. Clinical trials concerning chronic disease, comparison of survivorship functions, parametric models for patterns of mortality and other kinds of failures, and competing risks.

P8109 Statistical inference

3 points.

Prerequisite: *Public Health P8104*. Suggested preparation: *P6104*, *P8104*, and working knowledge of calculus, population parameters, sufficient statistics. Basic distribution theory. Point and interval estimation. Method of maximum likelihood. Method of least squares regression. Introduction to the theory of hypothesis testing. Likelihood ratio tests. Nonparametric procedures. Statistical design theory.

P8110 Topics in biometry

3 points.

Prerequisites: *Public Health P6104*, *P8100*. An introduction to the application of statistical methods in survival analysis, generalized linear models, and design of experiments. Topics to be covered include estimation and comparison of survival curves, regression models for survival data, log-linear models, logit models, analysis of repeated measurements, and the analysis of data from blocked and split-plot experiments. Examples are drawn from the health sciences.

P8111 Linear regression models

3 points.

Prerequisites: *Public Health P6105* and some computer background. The theoretical background underlying regression techniques. Simple regression. Bivariate normal distribution and correlation. Multiple and polynomial regression.

P8115 Sample survey theory

3 points.

Prerequisite: *Public Health P8111* or the equivalent. Theory and practice of sampling populations. Simple random, stratified random, cluster, multistage, and systematic random sampling. Additional topics including optimal allocation, ratio and regression estimation, balancing precision against cost, and sources of bias including nonresponse.

P8116 Design of medical experiments

3 points.

Prerequisite: *Public Health P8111* or the equivalent. Principles in the design and analysis of controlled experiments: Latin squares,

incomplete block designs, crossover designs, fractional factorial designs, confounding.

P8117 Nonparametric statistics

3 points.

Prerequisite: *Public Health P6104* or the equivalent. Presentation of statistical techniques valid for data from distributions requiring minimal assumptions. Topics include rank tests, permutation tests, contingency tables, rank correlation methods, analysis of variance and regression methods for ranked data, and methods of nonparametric survival analysis.

P8118 Advanced topics in applied regression analysis

3 points.

Prerequisites: *Public Health P8100* or *P8111*, matrix algebra, and calculus. Selecting the best regression equation. Multiple regression applied to the analysis of variance. Introduction to nonlinear regression. Special topics include influential observations, inverse regression, ridge regression, principal components regression, robust techniques.

P8120 Analysis of categorical data

3 points.

Prerequisites: *Public Health P6104* and *P6400* or their equivalents. A thorough study of the fourfold table, with applications to epidemiological and clinical studies. Significance versus magnitude of association; estimation of relative risk; matching cases and controls; effects, measurement, and control of misclassification errors; combining evidence from many studies.

P8121 Generalized linear models

3 points.

Prerequisites: *Public Health P8111* and *Statistics W4107 Statistical inference*. An examination of a generalization of the classical regression model. Topics include log-linear models for count data, probit and logit models, analysis of data with discrete ordered responses, and analysis of continuous data where the variability increases with the mean. Survival analysis and model checking are discussed as time allows.

P8129 Theory of multivariate analysis

4 points.

Prerequisite: *Public Health P8111* or the equivalent. Thorough review of matrix algebra; inverses; orthonormalization; affine transformations; eigenvectors and eigenvalues. The multivariate normal distribution. Multivariate sampling distributions. The multivariate general linear model. Hotelling's T^2 .

P8133 Sequential experimentation

3 points.

Prerequisites: *Public Health P6105* and *P8111* or their equivalents. An introduction to sequential analysis as it applies to statistical problems in clinical trials, hypothesis testing, selection, and estimation. Emphasis is placed on a study of procedures, operating characteristics, and problems of implementation, rather than mathematical theory. Students obtain an overview of currently available sequential designs and the advantages and disadvantages they offer in comparison with classical designs.

P8137 Seminar on statistics in mental health research

1 point.

This seminar is designed to give pre- and postdoctoral fellows in the Mental Health Statistics Training Program a forum for discussing the application of statistical models to mental health data. Students take turns presenting research problems and plans for statistical analysis. Other students serve as discussants during

presentations. It is expected that students learn how to apply statistical methods to real mental health data.

P8139 Theoretical genetic modeling

3 points.

The theoretical foundations underlying the models and techniques used in mathematical genetics and genetic epidemiology. Topics include use and interpretation of likelihood methods; formulation of mathematical models; segregation analysis; ascertainment bias; linkage analysis; genetic heterogeneity; and complex genetic models. Lectures, discussions, homework problems, and a final exam.

P8140 The randomized clinical trial

2 points.

Prerequisite: *Public Health P6104* or the equivalent. Fundamental methods and concepts of the randomized clinical trial: protocol development, randomization, blinding, patient recruitment, informed consent, compliance, sample size determination, cross-overs, collaborative trials. Each student prepares and submits the protocol for a real or hypothetical clinical trial.

P8145 Statistical methods in AIDS research

2 points.

Prerequisites: *Public Health P6104* and *P6400* or the equivalent. A state-of-the-art review of the unique statistical problems that arise in AIDS research. The focus is on statistical methods for the analysis of epidemiological studies of the natural history of AIDS and the transmission of HIV, and methods for tracking and projecting the course of the epidemic.

P8150 Topics in applied statistics

3 points.

Prerequisites: *Public Health P8111* and *Statistics W4107 Statistical inference*. This course presents some recently developed ideas in applied statistics including the EM algorithm; the jackknife, bootstrap, and other resampling methods; model selection; and regression diagnostics.

P8151 Methods of statistical adjustment

3 points.

Prerequisite: *Public Health P6104*. A survey intended to introduce students to the wide variety of techniques available for the statistical adjustment of data, with an emphasis on broad coverage rather than depth. Techniques for testing and estimation with covariate adjustment including stratification, matching, direct and indirect standardization of rates, analysis of covariance linear and logistic regression models, conditional likelihood methods, piecewise exponential, and Cox regression models in survival analysis.

P8157 Analysis of repeated measurements

3 points.

Prerequisite: *Public Health P8111*. Topics include features of repeated measurements studies: balance in time, time-varying covariates, and correlation structure. Examination of the models for continuous repeated measures based on normal theory: random effects models, mixed models, multivariate analysis of variance, growth curve models, and autoregressive models. Nonparametric approaches and models for repeated binary data. Applications of generalized linear models to repeated data. Empirical Bayes approaches are discussed as time allows.

P8160 Topics in statistical computing with APL

3 points.

An introduction to the elements of APL syntax, to the fundamentals of numerical analysis in the solution of linear and nonlinear systems of equations that arise in statistical modeling, and to

mathematical experimentation with the microcomputer, including but not limited to simulation techniques. A combination of lectures and computer laboratory work. Students are evaluated on the basis of homework exercises and a term project.

P8165 Likelihood models in biology and statistics

3 points.

Mathematical models based on likelihoods are used in biostatistical areas as diverse as statistical genetics, clinical trials, and tumor growth modeling. Students learn how to formulate likelihood models for a broad variety of biological problems and how to interpret the results statistically. Specific topics include: "likelihood" and "probability"; likelihood formulations for binomial, multinomial, normal, and exponential probability models; sufficient statistics; transformation of variables; support functions; maximum likelihood estimators and likelihood ratio tests, and their asymptotic properties; odds and Bayesian analysis; goodness-of-fit testing; and Neyman-Pearson significance testing vs. pure likelihood analysis. Topics are illustrated by and applied to current areas of scientific investigation. Course format: lectures, discussions, and homework assignments.

P9103 Psychometric theory

3 points.

Classical test theory: true and error scores, measures of reliability and validity, composite tests. Modern test theory: parallel versus tau-equivalent measures, generalizability theory, logistic test models. Applications of factor analytic methodology.

P9104 Advanced multivariate techniques and applications

4 points.

Prerequisite: *Public Health P8129* or the equivalent. Multivariate analysis of variance. Discriminant function analysis. Canonical correlation analysis. Principal components and factor analysis. Analysis of covariance structures. Applications to health data.

P9105 Topics in the analysis of longitudinal studies

3 points.

Prerequisite: *Public Health P8108* or the equivalent. Seminar for advanced students planning to pursue doctoral work in this area. Reading of recent articles of theoretical and practical importance for the planning and analysis of long-term longitudinal studies. Lectures, discussions, presentations by students.

P9107 Statistical modeling for data analysis I

4 points.

Prerequisites: *Public Health P8109* or equivalent; familiarity with matrix algebra.

P9108 Statistical modeling for data analysis II

4 points.

Prerequisite: *Public Health P9107* or instructor's permission.

This *two-semester sequence* is a core course in modern methods of applied statistics for doctoral candidates in Statistics and Biostatistics. It complements and parallels the existing core requirements in probability and mathematical statistics. The course is an intensive survey of statistical data analysis within an interactive computing environment. Assignments requiring computer analysis of scientific data are due approximately every week. Topics from the subjects of regression, ANOVA, ANOCOVA, design of experiments, random effects, variance components, contingency tables, logistic regression, survival curves, time series, and multivariate analysis are included. These topics are covered in less depth and with less mathematical formalism than in other courses in Statistics and

Biostatistics that devote an entire semester to some of the above subjects. However, the lectures assume a doctoral level of sophistication during presentation of the theoretical bases of each method, and of the connections and relationships among methods. The mechanics of computer usage are not discussed in lectures but are covered in a weekly recitation section.

P9109 Theory of statistical inference I

4.5 points.

Prerequisite: *Statistics G6105 Probability theory and real analysis I* or the equivalent. Suggested preparation: *This is a doctoral level course*. A general introduction to mathematical statistics and statistical decision theory. Elementary decision theory, Bayes inference, Neyman-Pearson theory, hypothesis testing, uniformity, most powerful unbiased tests, confidence sets. Estimation: methods, theory, and asymptotic properties. Likelihood ratio tests, multivariate distribution. Elements of general linear hypothesis, invariance, nonparametric methods, sequential analysis.

P9110 Theory of statistical inference II

4.5 points.

Prerequisite: *Public Health P9109*; *this is a continuation of that course*. A general introduction to mathematical statistics and statistical decision theory. Elementary decision theory, Bayes inference, Neyman-Pearson theory, hypothesis testing, uniformity, most powerful unbiased tests, confidence sets. Estimation: methods, theory, and asymptotic properties. Likelihood ratio test, multivariate distribution. Elements of general linear hypothesis, invariance, nonparametric methods, sequential analysis.

P9112 Variance components models

3 points.

Prerequisites: *Public Health P8111*, or *Statistics W4107 Statistical inference* or the equivalent, and familiarity with linear algebra. This one-semester course focuses on developing the theoretical framework behind variance component models and relating this theory to applications such as the analysis of longitudinal data, the analysis of clustered data, the assessment of inter-rater reliability, and methods for combining information. Students learn to use the SAS, BMDP, and SPLUS packages. Psychiatric examples are used to illustrate the models.

P9145 Advanced statistical methods in AIDS research

3 points.

Prerequisite: *Public Health P8108* or the equivalent. Seminars for advanced students planning to pursue doctoral work in this area. Reading of recent articles with theoretical results for the analysis of HIV/AIDS studies.

P9154 Discrete statistical analysis

3 points.

Prerequisites: *Statistics W4105 Statistics for the social sciences* and *W4107 Statistical inference*. Discrete univariate and multivariate distributions; sampling models for discrete data; maximum likelihood and best asymptotically normal estimation; asymptotic behavior of goodness of fit statistics; homogeneity of association and symmetry in multiway contingency tables; log-linear models; polytomous logistic regression.

P6190, P8190, P9190 Tutorials in biostatistics

1 to 6 points.

For appropriately qualified students wishing to enrich their programs by undertaking literature reviews, special studies, or small group instruction in topics not covered in formal courses.

ENVIRONMENTAL HEALTH SCIENCES

Degrees offered:

M.P.H., Dr.P.H., Ph.D.

DIVISION OF ENVIRONMENTAL HEALTH SCIENCES

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Marco Zaider, Ph.D.

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Lawrence D. Budnick, M.D., M.P.H.

Arvind V. Carpenter, Dr.P.H.

David E. Cohen, M.D., M.P.H.

Vincent M. Coluccio, Dr.P.H.

Fanny K. Ennever, Ph.D.

Ronald F. Teichman, M.D.

Haig-Michael D. Utidjian,

M.B., B.S.

EXAMPLES OF FACULTY AREAS OF EXPERTISE

Environmental and occupational causes of cancer; dietary and environmental factors in cancer prevention; interaction between genes and the environment; molecular epidemiology; methods and applications of biomarkers, or early warning systems for disease, in risk assessment; chemical and natural carcinogens; chemical carcinogenesis, specifically, DNA structure and conformation and the mechanism of mutation; DNA repair; radiation effects; medical physics; parasitic diseases of the water supply; childhood lead poisoning/exposure and the related impact on development; air pollution and disease of the lungs; ethical issues in environmental and occupational health.

Objectives

Environmental Health Sciences is a rapidly expanding field that requires a broad range of basic and applied scientific skills. The program at the Mailman School of Public Health is primarily oriented toward understanding and predicting the health effects of environmental and occupational exposure to chemicals and radiation. Research activities of the faculty aim to generate scientific data that ultimately serve as the underpinnings of environmental policy decisions. Because the field is so broad, students are encouraged to focus on particular areas, including Occupational Medicine, Environmental or Molecular Epidemiology, Medical/Health Physics, or Toxicology. Each of these is taught with some consideration of national, international, and global policy issues.

Students find employment in varied settings including academia, the chemical and pharmaceutical industries, federal or local environmental protection agencies, health departments, hospitals (particularly Medical/Health Physics students), environmental consulting firms, and public interest groups.

The requirements for admission to the Environmental Health Sciences program are special to this Division and must be read in conjunction with the general requirements of the School. The program in Environmental Health Sciences typically attracts students with a wide variety of backgrounds and interests, but several academic prerequisites are required for admission. These include



Associate Professor Greg A. Freyer, Ph.D., guides doctoral student Eva Lin in research examining how the cell repairs damage after ultraviolet irradiation.

one year of undergraduate biology, one year each of general and organic chemistry, and one year of undergraduate mathematics (which must be calculus for the Medical/Health Physics track). If a student is missing one of the prerequisites, he or she may be admitted on the condition that the deficiency be successfully completed during the first year. Fall admissions are encouraged.

Master of Public Health (M.P.H.)

Course requirements for the M.P.H. vary substantially among tracks. For example, students interested in Environmental or Molecular Epidemiology are expected to take some toxicology coursework and more than the minimal M.P.H. requirements in epidemiology and biostatistics; those pursuing the Toxicology track (a joint program with the Department of Pharmacology in the Medical School) are expected to develop a strong background in physiology and molecular biology. Students particularly interested in policy issues may elect to take additional courses offered via the Environmental Policy program in the School of International and Public Affairs at the main campus. Some flexibility and crossover is usually allowed, taking into account each student's background and career goals. A master's essay is optional, but is strongly recommended for students who are also considering the pursuit of the Dr.P.H. degree. At the M.P.H. level, the practicum experience varies from laboratory research to governmental agency involvement to relevant summer or part-time corporate or interest group employment. Alumni actively participate in these efforts. The practicum can be waived for students with professional experience or advanced training.

For medical school graduates interested in occupational medicine, the Division cooperates with hospitals and industries in the region to offer an accredited *Occupational Medicine Residency Program* that provides both didactic and clinical training leading to the Master of Public Health degree and certification for board requirements. Further information should be obtained directly from the Division of Environmental Health Sciences.

Doctor of Public Health (Dr.P.H.)

Faculty members of the Division of Environmental Health Sciences also supervise selected advanced students in doctoral studies leading to the degree of Doctor of Public Health (Environmental Health Sciences). Usually, a student first registers in the Master of Public Health program so that performance can be evaluated; transfer to the Doctor of Public Health program may then be requested. In cases where a candidate already holds a master's or doctoral degree in a related field, this requirement may be waived. Each student's program is planned according to individual career objectives and interests. The Doctor of Public Health (Environmental Health Sciences) Program has the same aims as those described in the Master of Public Health (Environmental Health Sciences) Program but adds an intensive research dimension. Research opportunities abound, and doctoral students are given first priority in the selection of research projects.

Doctor of Philosophy (Ph.D.)

The purpose of the Ph.D. program in environmental health sciences is to develop scholarly expertise in the field of environmental health, particularly in environmental toxicology and health physics. The emphasis of the program is on laboratory-based investigation into the pathophysiologic mechanisms by which chemical and physical agents in the environment affect human health. These investigations form the basis for the prevention and control of environmental health disorders. Thus, the study of environmental health also requires an understanding of the application of scientific knowledge in environmental risk assessment and environmental health policy. The program permits specialization according to the student's background and interest.

Undergraduate majors in the basic sciences, particularly biology and chemistry, are considered to have good preparation for this doctoral program. As a minimum, applicants must have completed one year each of the following: general chemistry, organic chemistry, biology, and mathematics.

Students are admitted for full-time study only. Further information on the program can be obtained from Professor Paul Brandt-Rauf: (212) 305-3464. Application is made through the Graduate School of Arts and Sciences. Applicants may call (212) 854-4737 and may also download a Ph.D. application over the WorldWide Web (<http://www.columbia.edu/cu/gsas/download.html>).

Course Descriptions

Note: Many courses require permission of the instructor/Division as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Services identifies courses that require permission prior to registration.

General Courses

P6300 Environmental Health Sciences
 P6301 Environmental Health Sciences Applications
 P6315 Environmental Contaminants in the Food Supply
 P6320 Radon, Risk and Remedy
 P6322 Ecology 101
 P6330 Radiation Science
 P8301 Gene Environment Interactions in Human Disease
 P8306 Environmental Hygiene
 P8307 Molecular Epidemiology
 P8309 Air Pollution
 P8325 Risk Assessment, Communication, and Management
 P9300 Topics in Environmental Health Sciences
 P9303 Management of Hazardous Wastes
 P9317 Case Studies in Risk Assessment and Environmental Policy
 P9320 Water and Infectious Diseases
 P9350 Master's Essay in Environmental Health Sciences I
 P9351 Master's Essay in Environmental Health Sciences II
 P9370 Journal Club in Environmental Health
 P6390, P8390, P9390 Tutorials in Environmental Health Sciences

The Occupational Medicine Residency Track

For general guidance contact Professor Brandt-Rauf, 305-3464.

P8328 Ergonomics
 P8351 Occupational Medicine Workshop
 P9305 Ethical Issues in Occupational/Environmental Health
 P9307 Occupational Medical Management
 P9315 Occupational Medicine
 P9316 Occupational Diseases

The Toxicology Track

For general guidance contact Professor Zheng, 305-7949.

P6310 Principles in Molecular Biology
 P6313 Principles of Human Physiology
 P8308 Molecular Toxicology
 P8311 Industrial Toxicology
 P8312 Systemic Toxicology
 P8313 Toxicokinetics
 P8319 Biological Markers of Chemical Exposure

The Medical/Health Physics Track

For general guidance contact Professor Brandt-Rauf, 305-3464.

The following courses can be taken in the fall and spring terms pending approval by the professor.

P8310 Health Physics
 P8330 Radiation Physics is a prerequisite for all the other courses in this track
 P8331 Introduction to the Physics of Diagnostic Radiology
 P8333 Radiation Oncology Practical Experience
 P8340 Diagnostic Radiology Applications
 P8356 Radiopharmaceuticals in Medical Imaging
 P8360 Basic Experimental Methods and Nuclear Instrumentation
 P8365 Nuclear Medicine Applications
 P9319 Nuclear Medicine and Radiopharmacology
 P9330 Diagnostic Radiological Physics
 P9335 Radiation Therapy Physics

P6300 Environmental health sciences

3 points.

Satisfies the Environmental Health Sciences core requirement for the M.P.H. degree. An introduction to preventive health practices with an emphasis on environmental factors. Review of basic public health concepts as they relate to disease causation and prevention. Toxicology, especially carcinogenesis, is stressed. In cooperation with Population and Family Health, tropical diseases and the implications of population growth are discussed. Available techniques of preventive practices, such as controlling the quality of air, water, and consumer products, are described for both the workplace and the general environment. Lectures are followed by discussion groups. Exams, papers, and presentation.

P6301 Environmental health sciences applications

1 point.

Primarily for students specializing in environmental health sciences. Faculty and leading practitioners of preventive health programs discuss various roles, professional problems, employment opportunities, and current trends in the field of environmental health sciences. Attendance and participation.

P6310 Principles in molecular biology*3 points.*

Lecture and laboratory course covering basic and laboratory techniques of recombinant DNA technology. Approximately one hour of lecture and two hours of laboratory exercises per week. Emphasis on fundamental concepts of molecular biology. Hands-on experience in conducting recombinant DNA experiments. Grades based on laboratory participation and final exam.

P6313 Principles of human physiology*3 points.*

An introductory human biology course with a focus on the homeostatic regulation of fluid compartments and molecular exchanges between the internal and external environments. Attention is given to basic information at the chemical, cellular, and tissue levels of biological organization. Particular emphasis is placed on organ systems involved in environmental chemical exposure and/or metabolism. A lecture and discussion classroom format is utilized. Evaluation of student performance is by a midterm and a final exam.

P6315 Environmental contaminants in the food supply*3 points.*

Review of interactions between humans, nutrition, and the natural and industrial environments. Focuses on nonnutrients in food supply: food additives, animal-feed residues, microbial contaminants, pesticide residues, and naturally occurring toxins. Irradiated and genetically engineered foods also discussed. Risk-assessment approach stressed. Lectures and group discussions. Exam and oral presentation of term paper.

P6320 Radon, risk and remedy*3 points.*

The radon problem has come to be seen as one of the most significant public health issues facing the populations of developed countries. The Assistant Surgeon General has stated that "Radon-induced lung cancer is one of today's most serious public-health issues." A reasonable estimate is that radon is implicated in 20,000 lung-cancer deaths per year in the United States. The radon problem has aspects that are highly multidisciplinary, ranging from biology to physics, geology, epidemiology, risk estimation and communication, building construction, as well as its legal, legislative, and real-estate aspects. Provides a broad appreciation of the facts (or lack of) and issues in the radon field. There is currently a rapidly increasing job market specifically in the radon field. Aimed at a broad spectrum of students from various disciplines. No technical background is assumed in physics, biology, or risk assessment, though references to the more technical aspects are made available. An in-class multiple choice midterm exam and an essay-based take-home final exam.

P6322 Ecology 101*3 points.*

Prerequisites: one course in biology and chemistry. The purpose of *Ecology 101* is to make students more aware of the ways in which interrelated life forms act in concert to form biomes (i.e., complex, mutually dependent communities). The concept of species and the niche, competition, succession, food chains and food webs, energy flow, productivity, and trophic levels are emphasized throughout. Each major biome is considered from these perspectives. Paper.

P6330 Radiation science*3 points.*

The purpose of this one-semester course is to familiarize the student with ionizing radiation: what it is, the type of instrumentation used to detect it, what its biological effects are, what risks and benefits are involved in the societal use of radiation (medical applications, laboratory techniques, nuclear energy). There are no prerequisites for attending this course other than an open mind, curiosity, and high school level scientific background. Upon successfully completing this course, the student is expected to be able to recognize a situation involving radiation, reason out how to use radiation sources safely, and, in general, be able to carry out an intelligent (unbiased and educated) discussion on radiation issues. Two take-home exams (midterm and final).

P8301 Gene environment interactions in human disease*3 points.*

Leading causes of morbidity and mortality result from complex interactions between genetic material and elements of the environment in which humans live. Diseases that represent public health challenges and illustrate different mechanisms of gene environment interactions are examined in seminar format. Students are evaluated on class participation, written critiques, and presentations.

P8306 Environmental hygiene*3 points.*

Primarily for students specializing in environmental sciences. Field measurements of environmental pollutants. Theoretical concepts used for instrumentation and techniques of practical application. Evaluation of environmental monitoring data. Exam and paper.

P8307 Molecular epidemiology*3 points.*

Covers methodologic and substantive issues in molecular epidemiology, including the application of biomarkers to the study of disease causation, to risk assessment, and to prevention. Specific topics include a review of the molecular biology relevant to commonly used biomarkers; issues of study design in etiologic and prevention research using biomarkers; logistical issues of biological sample collection, storage, and banking; criteria for selecting biomarkers; statistical approaches; application of biomarker data in risk assessment; and ethical considerations in biomarker research. The use of molecular epidemiology as a tool to understand interactions between external/"environmental" exposures and susceptibility factors and to identify "at risk populations" and individuals is emphasized. Students gain a working knowledge of the field and a familiarity with the current literature. There are required readings, weekly homework assignments, and a final term paper. Students are also graded on class participation.

P8308 Molecular toxicology*3 points.*

Prerequisite: knowledge of organic chemistry. Chemical and biochemical principles governing toxicity of environmental pollutants, particularly carcinogens. Significance of entry route, dosage, tissue distribution, time course, metabolism, excretion, cellular action, host susceptibility factors, and assays. Applications to practical situations described by guest lecturers from industry and government. Report and final exam.

P8309 Air pollution*3 points.*

A broad view of air pollution from a human health perspective. Begins with an overview of sources, controls, transport/dispersion, and concentration trends of major outdoor air pollutants. Characteristics of human exposure to air pollution are covered, with emphasis on population time/activity patterns and indoor air pollution concentrations. The course concludes with a series of lectures on the interactions of air pollutants with the human respiratory system, and the scientific approaches used by researchers studying these phenomena. Midterm and final exams.

P8310 Health physics*3 points.*

Introduction to fundamental principles of health physics. Detailed discussion of aspects of nuclear physics important in health physics, radiation dosimetry in biological systems, health physics instrumentation. Guest lecturers and audiovisuals are included. Final examination and one research paper on subject of student's choice.

P8311 Industrial toxicology*3 points.*

Systematic study of major families of industrial chemicals and physical hazards, such as electromagnetic radiation. Basic mechanisms and toxic effects. Environmental examples of exposure. Midterm exam and final paper.

P8312 Systemic toxicology*3 points.*

Introductory toxicology course that first stresses basic principles concerning absorption, distribution, elimination, and toxicokinetics. The impact of toxic exposures on selected organ systems is then developed, with particular emphasis on kidney, lung, nervous system, liver, heart, skin, and reproductive system. For each organ system, a representative group of prototypical toxins is studied in depth. Midterm and final exams.

P8313 Toxicokinetics*3 points.*

Lecture and in-class practice to help develop the skill to analyze experimental data and evaluate literature reports regarding toxicokinetic aspect of chemical exposure. Emphasis on the ability to solve real problems. Topics cover the concept of compartment, analysis of blood and urine data, absorption kinetics, multi- or noncompartment analysis, PBPK modeling and risk assessment, and factors affecting toxicokinetic parameters of environmental toxicants. Midterm exam and final presentation.

P8319 Biological markers of chemical exposure*3 points.*

Prerequisites: organic chemistry and some biological science. The various methods for monitoring human exposure to environmental and occupational chemicals are discussed with the major focus on genotoxic agents. Methods for monitoring exposure to kidney and immune system toxins are also discussed. Details of specific laboratory methodology and application to epidemiologic studies are covered. Format is lectures and discussion of original research papers. Evaluations are based on midterm and final exams and presentation.

P8325 Risk assessment, communication, and management*3 points.*

Outline of the process of risk assessment, involving risk identification, concentration assessment, exposure assessment, quantitative toxicology, and risk characterization. Emphasis on derivation of

assumptions and on the nature and extent of uncertainties in risk assessment. Consideration of the use of risk assessment in the separate processes of risk management and of risk perception and communication. Midterm and final exams.

P8328 Ergonomics*1 point.*

An introduction to the principles and applications of ergonomics, including work/workplace design, technology management, anthropometrics, and biomechanics. Goal is to instruct students in the occupational health analysis of the worker-workplace interface where preventive strategies can minimize ergonomically related disorders. Lectures with final exam.

P8330 Radiation physics*3 points.*

Introduction to atomic and nuclear physics and the quantum mechanics interaction of ionizing radiation with matter. Other subjects include radiation dosimetry, instrumentation, radiation protection (internal and external), and, briefly, the chemical and biological effects of radiation. Material is at beginning graduate level. Exercises, group work. Midterm and final exam. This course is **required** for all other medical/health physics courses.

P8331 Introduction to the physics of diagnostic radiology*1 point.*

Introduction to the physics and equipment utilized in diagnostic radiology. Presents an overview of terminology, basic physics principles, x-ray equipment operations, and general image quality issues. Topics include: the nature of electromagnetic radiation, x-ray production, x-ray units, image intensifiers, television system image quality assessments, radiation dosimetry, and radiation safety. Nonmathematical in content. Concepts are presented that are basic to understanding diagnostic radiology procedures. A prerequisite to *Public Health P9330*.

P8333 Radiation oncology practical experience*3 points.*

Application of medical physics to cancer therapy. One day weekly in a hospital setting under close supervision. Dosimetry, calibrations, and treatment planning. Four to six clinically oriented laboratory-type projects are assigned.

P8340 Diagnostic radiology applications*3 points.*

Practical applications of diagnostic radiology for various measurements and equipment assessments. Includes instruction and supervised practice in radiation safety procedures, image quality assessments, regulatory compliance, radiation dose evaluations, and calibration of equipment. Topics include x-ray generator calibration, focal spot measurements, radiation output measurements, half-value layer measurements, and others. Objective is familiarization with routine operation of test instrumentation required in diagnostic medical physics. Research reports.

P8351 Occupational medicine workshop*3 points.*

Coverage of the latest advances in occupational medicine combined with practical experience in the field. Review of recent literature, analysis of cases, and participation in research projects involving occupational medicine surveillance and evaluation.

P8356 Radiopharmaceuticals in medical imaging*3 points.*

Provides an understanding of the principles of (1) fundamentals of radiopharmacology: safety and efficacy, dosimetry, pharmacokinetic

ics and pharmacodynamics of SPECT and PET radiopharmaceuticals; (2) production of radionuclides; radionuclide generator systems; preparation of radiopharmaceuticals; operations, regulations, and quality controls; (3) pharmacokinetics and pharmacodynamics of radiopharmaceuticals in medical imaging and therapy.

P8360 Basic experimental methods and nuclear instrumentation

3 points.

Basic experimental techniques, atomic and nuclear devices, and instrumentation common to many areas of medical and health physics. Combines lectures on the theory of operation of basic nuclear instruments with hands-on operation. Emphasis on laboratory performance by students of required experiments and some elective experiments based on specific interests.

P8365 Nuclear medicine applications

3 points.

Practical applications of nuclear medicine theory for processing and analysis of clinical images, radiation safety, and quality assurance programs. Topics may include tomography, instrumentation, functional imaging and the kinetics and biodistribution of radiopharmaceuticals. Research reports.

P9300 Topics in environmental health sciences

4 points.

The primary objective of this advanced course is to teach students to critically and objectively review original scientific publications. Environmental science is an extremely broad field. Professionals

are often called upon for advice concerning a wide array of topics including characterization of the environment, exposure assessment, mechanisms of effects on human health, and strategies for preventing environmentally induced human disease. This course covers a wide variety of topics in environmental health sciences that are either fundamentally related to understanding exposure and effects, or are of current national or international concern. Weekly, succinct papers account for 70 percent of the grade. Students' oral presentations account for the remaining 30 percent.

P9303 Management of hazardous wastes

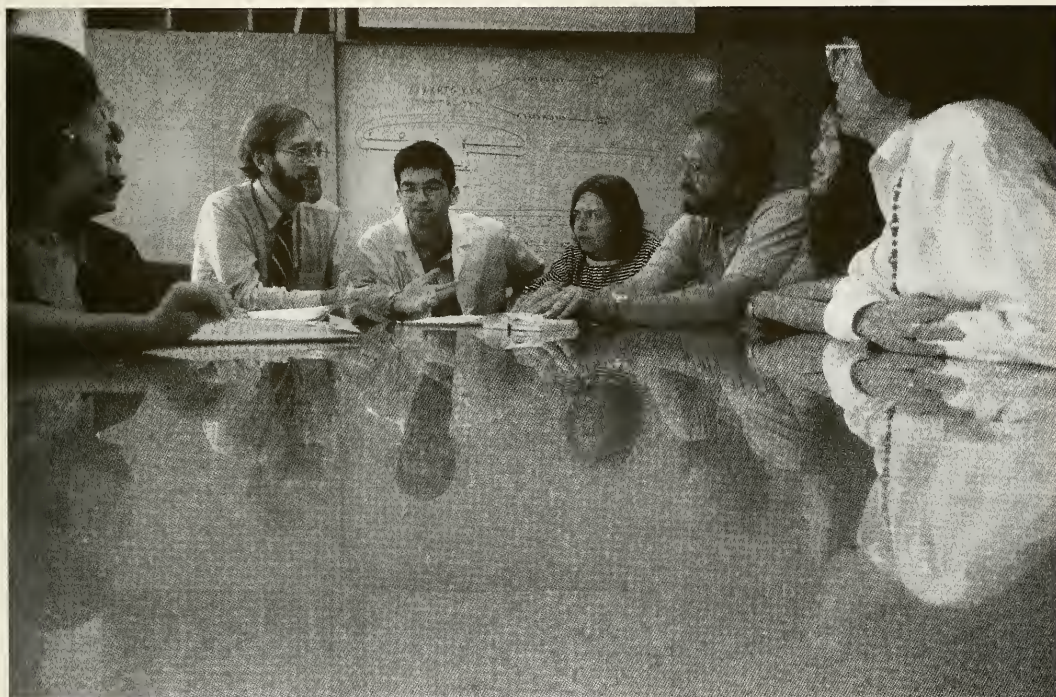
3 points.

Definition, classifications, and nature of hazardous and toxic wastes. Storage, transportation, treatment, and disposal techniques proposed and being supplied. Includes chemical and biological treatment, incineration, and land burial. Critical environmental issues and multimedia pollution prevention by waste minimization.

P9305 Ethical issues in occupational/environmental health

3 points.

Coverage of areas of current interest in occupational and environmental health that raise significant ethical issues, such as genetic screening in the workplace, cost-benefit analysis in standard setting, and the right to know. Purpose is to increase awareness of the ethical problems in this field and to provide a framework for analysis of these problems. Class presentations and papers.



Environmental Health Sciences faculty, students, and postdoctoral fellows discuss research strategies, led by Professors Paul Brandt-Rauf, M.D., Dr.P.H. (third from left), Greg A. Freyer, Ph.D. (third from right), and Regina Santella, Ph.D. (near right).

P9307 Occupational medical management*3 points.*

Provides occupational health professionals with a background in management and business administration. Coverage of microeconomics, finance, management, organizational behavior, personnel and human resources, labor relations, and corporate structure and activity. Class presentations and papers.

P9315 Occupational medicine*3 points.*

Introduction to the practice of occupational medicine. Topics include the roles of medical departments in corporations, clinical and administrative responsibilities, health screening, wellness programs, epidemiological studies, data management, risk assessment management, legal and ethical issues, and related subjects. Exploration of interfaces with associated professions, such as occupational health nursing and industrial hygiene, and with academic institutions. Exam.

P9316 Occupational diseases*3 points.*

Organ system approach to the diagnosis, treatment, and prevention of occupational and environmental diseases. Midterm and final exams.

P9317 Case studies in risk assessment and environmental policy*3 points.*

The scientific basis for recent government decision making on major public health and environmental issues. Specific aspects include a critical assessment of the available scientific database, the process of risk assessment, and the political component of decisions. Case studies include health-based standards for vinyl chloride, lead, pesticides, and hazardous wastes, and environmental policy involving acid rain and the greenhouse effect. Seminar. Research paper.

P9319 Nuclear medicine and radiopharmacology*3 points.*

Physical bases of nuclear medicine are reviewed, and imaging instrumentation and computer diagnosis are discussed. Other topics include radionuclide generator systems and quality control, radiopharmaceutical preparations and quality control, chemistry and radiopharmacology of radionuclides, and radiopharmaceuticals for diagnostics and therapeutics. Midterm and final exams, term paper.

P9320 Water and infectious diseases*3 points.*

Prerequisites: Undergraduate biology that included basic biochemistry, immunology, and microbiology, as well as whole organism biology. Water plays a pivotal role in the life cycles of many infectious diseases throughout the world. This course explores several contexts in which water is a crucial link in the generation of disease, namely: (1) waterborne pathogens as contaminants of drinking water, for example, cholera and cryptosporidiosis; (2) diseases that result from direct, external contact with water, e.g., schistosomiasis; and (3) water as a niche for arthropod vectors of human diseases, for example, the mosquito vectors of yellow fever, filariasis, and malaria. The history, transmission cycles, epidemiology, role of water, etiologic agents, pathogenesis, and prevention strategies are examined for several representative diseases.

P9330 Diagnostic radiological physics*3 points.*

Prerequisite: *Public Health P8331*. Description of x-ray generators and tubes followed by survey of image quality concepts, introductory fluoroscopy, image intensifiers, and cine systems. The second part covers mammography, CT scanners, ultrasound, and magnetic resonance imaging. Midterm and final exams.

P9335 Radiation therapy physics*3 points.*

Review of x-ray production and fundamentals of nuclear physics and radioactivity. Detailed analysis of radiation absorption and interactions in biological materials as specifically related to radiation therapy and radiation therapy dosimetry. Surveys of use of teletherapy isotopes and x-ray generators in radiation therapy plus the clinical use of interstitial and intracavitary isotopes. Principles of radiation therapy treatment planning and isodose calculations. Problem sets taken from actual clinical examples are assigned. Exam.

P9350 Master's essay in environmental health sciences I*1 point.*

For students who plan to enter the doctoral program, the *Master's essay in environmental sciences* is strongly recommended. The essay may represent empirical research, a fresh analysis of existing data, or a theoretical treatise. The student first registers for a one-semester, 1-point course (*Master's essay in environmental sciences I*) to develop a proposal in consultation with a faculty supervisor. This proposal is submitted to the Master's Programs Committee for approval.

P9351 Master's essay in environmental health sciences II*3 points.*

Prerequisite: *Public Health P9350*. After the successful completion of *P9350 Master's essay in environmental health sciences I*, students may register for *P9351 Master's essay in environmental health sciences II* to carry out the actual writing of the essay under the guidance of the supervisor. The supervisor with a coreader reviews the master's essay.

P9370 Journal club in environmental health*1 point.*

Students are required to read primary research papers and orally present a critical review of their readings. Course topic, related to current studies in environmental sciences, changes each semester as determined by the instructor. Sample topics include the effects of ozone depletion on cells, asthma in the urban environment, recent advances in the use of biomarkers in predicting cancer, health effects of heavy metals in the environment, and waterborne pathogens and disease. Required course for Dr.P.H. and Ph.D. students in Environmental Health Sciences.

P6390, P8390, P9390 Tutorials in environmental health sciences*1 to 6 points.*

Tailored to the particular interests and needs of individual students. May take many forms—literature reviews, laboratory experiments, field trips, special studies, or other learning experiences that enrich and contribute to the student's program.

EPIDEMIOLOGY

Degrees offered:

M.P.H., M.S., Dr.P.H., Ph.D.

DIVISION OF EPIDEMIOLOGY
622 West 168th Street, 18th Floor
New York, NY 10032
(212) 305-9412

Professor and Division Head

Ezra Susser
M.D., Columbia, 1982; Dr.P.H., 1993

Professors

Bruce P. Dohrenwend
(also Psychiatry) B.A., Columbia, 1950; M.A., 1951; Ph.D., Cornell, 1955

W. Allen Hauser
(also Neurology) (in the Sergievsky Center) B.A., Case Western Reserve, 1958; M.D., St. Louis, 1962

Geoffrey R. Howe
(Anna Cheskis Gelman and Murray Charles Gelman Professor) B.Sc., London, 1965; Ph.D., Leicester (England), 1969

Bruce G. Link
(in Psychiatry) B.A., Earlham, 1971; M.S., Columbia, 1980; Ph.D., 1982

Richard Mayeux
(also Gertrude H. Sergievsky Professor of Neurology and Psychiatry) B.S., Oklahoma, 1968; M.D., 1972; M.S., Columbia, 1991

Patrick Moore
(also Pathology) B.S., Westminster, 1977; M.S., Stanford, 1980; M.D., Utah, 1985; M.Phil, 1985; M.P.H., California (Berkeley), 1990

Alfred I. Neugut
(also Medicine) B.A., Columbia, 1972; M.D., Ph.D., 1977; M.P.H., 1983

Steven Shea
(also Southworth Professor of Medicine) B.A., Harvard, 1968; M.A., Yale, 1971; M.D., Columbia, 1979; M.S., Harvard, 1985

Myrna Weissman
(in Psychiatry) B.A., Brandeis, 1956; M.S.W., Pennsylvania, 1958; Ph.D., Yale, 1974

Adjunct Professors

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Cladd E. Stevens

B.A., Pomona College, 1963; M.D., Baylor, 1968; M.P.H., Washington (Seattle), 1974

Professors of Clinical Public Health

Patricia R. Cohen
(in Psychiatry) B.A., Hamline, 1958; Ph.D., New York University, 1968

Madelyn S. Gould
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Clinical Professor

William T. Friedewald
(also Medicine) B.S., Notre Dame, 1960; M.D., Yale, 1963

Associate Professors

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Ralph Sacco
(also Neurology) (in the Sergievsky Center) B.S., Cornell, 1979; M.D., Boston, 1983; M.S., Columbia, 1989

Elmer Struening
B.S., Hastings, 1949; M.S., Purdue, 1951; Ph.D., 1957

Adjunct Associate Professors

Seth F. Berkley
Sc.B., Brown, 1978; M.D., 1981

Alfredo Morabia
M.D., Geneva, 1978; M.A., Johns Hopkins, 1987; Ph.D., 1989

Associate Professors of Clinical Public Health

Stephen Arpad
(also Pediatrics) B.A., Antioch, 1975; M.D., George Washington, 1982; M.S., Columbia, 1991

Mary Ann Chiasson
B.A., Bennington, 1972; M.S., New York University, 1978; M.P.H., Columbia, 1985; Dr.P.H., 1988

Maureen S. Durkin
(in the Sergievsky Center) B.A., M.A., Wisconsin (Madison), 1977; Ph.D., 1982; M.P.H., Columbia, 1985; Dr.P.H., 1988

Pam Factor-Litvak

(also Environmental Health Sciences) B.A., Rochester, 1977; M.Sc., Harvard, 1979; M.Phil., Yale, 1980; Ph.D., Columbia, 1992

Marilie D. Gammon

B.S., California (Berkeley), 1974; M.P.H., Washington (Seattle), 1982; Ph.D., Yale, 1989

Isaac B. Weisfuse

B.A., Columbia, 1977; M.D., State University of New York (Downstate), 1982

Carolyn L. Westhoff

(also Obstetrics and Gynecology) B.S., Michigan, 1972; M.D., 1977; M.S., London School of Hygiene and Tropical Medicine, 1983

Associate Clinical Professor of Public Health**L. David Carmichael**

(also Medicine) B.A., Harvard, 1969; M.D., Albert Einstein, 1976; M.P.H., Columbia, 1983

Assistant Professors**Habibul Ahsan**

M.B.B.S., Dhaka, 1988; P.G.Dip., Western Australia, 1990; M.Med.Sc., Western Australia, 1992

Ana V. Diez-Roux

(also Medicine) M.D., Buenos Aires (Argentina), 1985; M.P.H., Johns Hopkins, 1991; Ph.D., 1995

Dale Hesdorffer

(in the Sergievsky Center) B.A., Barnard, 1981; M.P.H., Columbia, 1989; Ph.D., 1993

Louise Kuhn

(in the Sergievsky Center) B.A., University of Cape Town, 1987; M.A., 1991; M.P.H., Columbia, 1993; Ph.D., 1995

Stephen S. Morse

B.S., City College (CUNY), 1971; M.S., Wisconsin (Madison), 1974; Ph.D., 1977

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(also Environmental Health Sciences) B.A., Virginia, 1980; M.P.H., Rutgers, 1988; Ph.D., Columbia, 1993

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(also Medicine) B.A., Guadalajara (Mexico), 1979; M.D., 1985; M.P.H., Columbia, 1992

Sharon B. Schwartz

B.A., Yeshiva, 1973; M.A., Columbia, 1974; Ph.D., 1985; M.S., 1988

Mary Beth Terry

B.A., George Washington, 1988; M.A., Washington (Seattle), 1990; Ph.D., Columbia, 1999

Adjunct Assistant Professors**Steven Arikian**

B.S., Fordham, 1979; M.D., Catania, 1987; M.B.A., Long Island University, 1990

Erica Gollub

B.S., Stanford, 1979; M.P.H., Columbia, 1982; Dr.P.H., 1991

Beryl Koblin

B.A., Delaware, 1978; Sc.M., Johns Hopkins, 1982; Ph.D., 1987

Jeri W. Nieves

B.S., Rhode Island, 1981; M.S., Cornell, 1984; Ph.D., Columbia, 1993

Judith Ellen Sackoff

B.A., Rochester, 1972; M.A., Washington, 1973; M.S., Columbia, 1986; M.Phil., 1990; Ph.D., 1992

Scott Stryker

B.A., Rice, 1973; M.D., Baylor, 1977; M.P.H., Harvard, 1982; Dr.P.H., 1987

Assistant Professors of Clinical Public Health**J. David Burch**

B.A., Calgary, 1967; M.A., Toronto, 1969

Moise Desvarieux

B.A., U. Port-au-Prince (Haiti), 1982; M.D., 1986; A.E.A., U. of Paris, 1988; D.M.M., Pasteur, 1989; M.P.H., Columbia, 1991; Ph.D., 1997

Christina Hoven

(in Psychiatry) B.A., Lindenwood, 1966; M.A., Missouri, 1968; M.P.H., Columbia, 1983; M.S., 1987; Dr.P.H., 1988

Judith Jacobson

A.B., Brown, 1964; M.P.H., Columbia, 1986; M.B.A., 1986; Dr.P.H., 1995

Robert E. Moore

(in Psychiatry) B.A., Virginia, 1979; M.S.W., Columbia, 1981; M.P.H., 1982; Dr.P.H., 1992

Godwin U. Obiri

B.S., West Virginia, 1984; M.S., 1986; Dr.P.H., Alabama, 1990

Susan A. Wilt

B.A., Bennington College, 1964; M.S., Columbia, 1978; Dr.P.H., 1985

Assistant Clinical Professors**Linnea Capps**

(also Medicine) B.S., Kansas, 1971; M.D., Missouri, 1977; M.P.H., Columbia, 1985

Thomas R. Frieden

B.A., Oberlin, 1982; M.D., M.P.H., Columbia, 1986

Charlotte A. Stueve

B.A., Michigan, 1971; M.A., Chicago, 1974; Ph.D., California, 1985

Special Lecturers**Anna C. Gelman, M.P.H.**

Inge F. Goldstein, Dr.P.H.

Zena A. Stein, M.B., B.Ch. (Professor Emerita)

Mervyn W. Susser, M.B., B.Ch., Dr.P.H. (Professor Emeritus)

EXAMPLES OF FACULTY AREAS OF EXPERTISE

Theory and methods in epidemiology; mental retardation; childhood injuries; prevalence and treatment of adolescent depression; psychiatric epidemiology, including schizophrenia, depression, and other mental illnesses; occupational risk factors for mental diseases; public attitudes toward the homeless; measurement of psychosocial stressors; challenges of research in the inner city, using household survey methods; effects of workplace, environmental, and physical stresses on reproduction and pregnancy outcome; contraceptives and their risks and benefits; incidence of cancer near nuclear facilities; epidemiology of respiratory diseases, particularly asthma; epidemiology and genetic and environmental causes of Alzheimer's and Parkinson's diseases; genetic susceptibility to neurological disorders such as epilepsy, Alzheimer's disease, Parkinson's disease, and migraine; risk factors for colon cancer; screening for colon, prostate, and breast cancer; cardiovascular epidemiology; implementation of preventive cardiology in primary care; cerebrovascular disease (stroke); community health services targeted to the Latino community; AIDS in women and children; TB; infectious diseases; and emerging diseases.

Objectives

Epidemiology is an integral part of human ecology. It is concerned with studying the distribution and determinants of health and disease in populations. Epidemiology is critical to disease prevention because it sheds light on why a particular disease originates, how it spreads, and its effective control. It encompasses infectious diseases as well as chronic diseases. The discipline of epidemiology has a conceptual theory, a specific methodology, and a body of substantive knowledge. An academic background in health, the biological or social sciences, or in mathematics and statistics is desirable for candidates wishing to enter this field. Demonstration of quantitative skills is required for admission.

Admission is for fall term only.

Master of Public Health (M.P.H.)

This concentration emphasizes the basic epidemiologic concepts and skills essential for research, program planning, and evaluation. These include (1) a conception of health and disease as determined by the interactions of biological, environmental, and societal variables; (2) the design of epidemiologic studies, including field surveys, and the collection, analysis, and interpretation of large amounts of data; and (3) an understanding of the epidemiologic principles and methods that serve as the foundation for rational strategies of public health intervention. The program aims to prepare students for careers in public health with a focus on research and community diagnosis, public health action, and program evaluation.

Courses in epidemiology cover methodological, biomedical, and sociomedical areas. The selection of specific courses depends on each student's background and major areas of interest. In addition to a general orientation to the principles of epidemiology and the design and application of epidemiologic studies, students may focus on epidemiologic approaches to one of several special areas of public health concern, such as chronic diseases, child health and development, psychiatric problems, and evaluation of programs and services. Other courses focus on methods in epidemiology, including study design, measurement, and statistical issues. Three semesters of full-time coursework are usually required. A master's essay, usually undertaken in conjunction with the practical experience, is required for the concentration. Students who meet the practicum requirement through prior experience prepare the master's essay on a subject agreed upon with the advisor.

Master of Science (M.S.)

This program enables students to gain a command of the major concepts and techniques of epidemiology, including a grounding in biostatistics. The degree is intended for professionals possessing another terminal graduate-level degree in a related field. Three semesters of part-time academic work and a master's essay are required.

Doctor of Public Health (Dr.P.H.)

The Doctor of Public Health degree program prepares professionals in biomedical and sociomedical fields for advanced careers as epidemiologists. This professional degree is usually suited to candidates with primary training in a related field, such as medicine, nursing, dentistry, psychology, sociology, and social work.

Doctor of Philosophy (Ph.D.)

The Doctor of Philosophy degree program, sponsored by the Graduate School of Arts and Sciences, trains specialists in epidemiology who are capable of advancing the theory, methods, and

knowledge of the discipline. This academic and research degree is suited to candidates with a background in the biomedical, social, or statistical sciences. Further information on program requirements and admissions criteria can be obtained from the Division of Epidemiology. Application is made through the Graduate School of Arts and Sciences; applicants may call (212) 854-4737 and may also download a Ph.D. application over the WorldWide Web (<http://www.columbia.edu/cu/gsas/download.html/>).

Special Programs in Epidemiology

Three special programs are available for predoctoral and postdoctoral training in epidemiology.

CANCER EPIDEMIOLOGY

This program provides training for research careers in the epidemiology of cancer. Trainees acquire both a solid grounding in epidemiology and biostatistical methods and a thorough knowledge of cancer. Some predoctoral and postdoctoral fellowships are available.

NEUROEPIDEMIOLOGY

This program draws faculty members, trainees, and curricula from neurology, epidemiology, and other relevant disciplines. Advanced predoctoral and postdoctoral training is available. Some postdoctoral fellowships are available. The topics covered in academic courses are epidemiology and biostatistics, neurology and neuroscience, and neuroepidemiology. Trainees with strong individual interests, such as human genetics, neonatology, or epilepsy, are encouraged to select concentrations as faculty strengths permit.

PSYCHIATRIC EPIDEMIOLOGY

This program is intended to prepare professionals for careers in epidemiologic research having to do with mental disorders. The program is sponsored jointly by the Division of Epidemiology and the Department of Psychiatry. Candidates may have backgrounds in epidemiology and public health, the social and psychological sciences, and psychiatry. Candidates may register for a master's or a doctoral degree program in epidemiology, as well as for degree programs in related fields. Some predoctoral and postdoctoral fellowships are available.

Course Descriptions

Note: Many courses require permission of the instructor/Division as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Services identifies courses that require permission prior to registration.

P6400 Principles of epidemiology I

3 points.

Satisfies the Epidemiology core requirement for the M.P.H. degree. Prerequisite: for students who are not M.P.H. candidates, the instructor's permission. Prerequisite or corequisite: *Public Health P6103* or *P6104*. The concepts, principles, and uses of epidemiology. Epidemiologic analysis of the determinants of health and disease. Study of particular diseases to illustrate the descriptions of their distributions and courses, the analysis of their causes, and approaches to prevention and control. In the main, teaching is in lecture format and autonomous small-group seminars. Research paper, exam, and student participation. Lectures, seminars, and exercises.

P8400 Epidemiology III: applied epidemiologic analysis
3 points.

Prerequisites: *Public Health P8120 and P8438*. This hands-on course, designed for M.P.H. (epidemiology) students, teaches how to analyze epidemiologic data using Statistical Analysis System (SAS) software to answer specific epidemiology research questions. The class meets each week for a two- or three-hour session. In each session, a brief overview of the theoretical aspects of relevant analytic methods is given, followed by a demonstration of how to perform them using SAS. The students are provided with epidemiology data set(s) and are asked to do analyses, to be discussed in class the following week. Restricted to Epidemiology students.

P8401 Principles of pharmacoepidemiology
3 points.

Prerequisites: *Public Health P6104 and P6400*. Covers the effects of pharmaceutical products as viewed from an epidemiologic perspective. Cohort, case-control, and observational studies are discussed as methods of drawing inferences about pharmaceuticals' effects on entire populations and subgroups. Clinical research, development of decision trees based on clinical outcome of drug usage, quality of life, and pharmacoeconomic issues are addressed. Students are graded on class participation and a final term paper to cover a methodological issue or specific drug entity.

P8403 Nutritional epidemiology
2 points.

Prerequisite: *Public Health P6400*. The use of epidemiology to study the role of nutrition in health and disease with an emphasis on methodological and measurement issues in dealing with nutrition and diet information. Topics covered include selection of data bases for nutrient analysis, dietary assessment instruments and methods, anthropometric and biochemical assessment of nutritional status, design issues in dietary studies, and the relationship of diet to disease using examples from heart disease, cancer, obesity, and osteoporosis literature. Lectures and discussions. A short class presentation and review paper.

P8405 Genetics in epidemiology
3 points.

Prerequisites: *Public Health P8120, P8438*, or their equivalents. Methodologic and substantive aspects of genetics in epidemiology, including an introduction to the biological basis of human heredity, complexities in studying the genetics of human disease, and study designs used to disentangle genetic and nongenetic contributions to disease etiology. Topics include methods for collection of valid family history data, familial aggregation studies, gene-environmental interaction, twin studies, segregation analysis, and linkage analysis. Required readings, weekly homework assignments, and two take-home exams.

P8406 Epidemiology of communicable diseases I
3 points.

Prerequisite: *Public Health P6400* or the instructor's permission. Undergraduate-level courses in general microbiology or molecular biology helpful, but not required. Study of the epidemiology of infectious diseases of national and international importance. Methods in outbreak investigation and molecular epidemiology as applied to infectious diseases are emphasized. Course lectures are centered around general topics related to infectious disease epidemiology, with several specific diseases or disease processes examined in detail as examples for each major mode of transmission. Through exercises, lectures, and readings, students have the opportunity to apply infectious disease epidemiology methods to specific health problems. Lectures are teleconferenced with the NYC Department of Health. Exercises, midterm, and final required.

P8409 Supervised teaching assistance
1 to 3 points.

Required of all doctoral students in Epidemiology. Participation in teaching as the need arises, under the direction of the faculty member responsible for the course. Student must have successfully completed the course to qualify for teaching assistance.

P8410 Reading seminar in psychiatric epidemiology I
3 points.

Reading and discussion of selected works on the relationship between sociocultural factors and psychiatric disorders. Emphasis is on public attitudes, selection factors in treatment, and treatment evaluation. Special emphasis is placed on problem formulation. Students learn to generate research problems through a careful consideration of available literature. Lectures and discussion along with symposia to develop and defend a position on a current controversy in psychiatric epidemiology. A short paper (five to fifteen pages) on symposia topic and a take-home exam.

P8411 Reading seminar in psychiatric epidemiology II
3 points.

Reading and discussion of selected works on relations between sociocultural factors and psychiatric disorders in the areas of prevalence, public attitudes, clinical diagnosis, etiology, and treatment.

P8414 Cancer epidemiology
3 points.

Prerequisites: *Public Health P6400*. Molecular and cellular biology of cancer and basic mechanisms of carcinogenesis. Role of chemical, viral, radiation, and genetic factors in human cancer. Sources of cancer patient data, with emphasis on acquisition and management of data for clinical and epidemiologic research. Natural history of cancer with analysis of time trends in cancer incidence, mortality, survival, and geographic distribution. Role of environmental factors (ecological/industrial/occupational) in cancer causation. Fundamental issues in cancer screening and applications to public health and medical practice. Lectures and discussions. Assigned readings and term paper.

P8417 Selected problems of measurement in epidemiology
3 points.

Prerequisites: *Public Health P6104, P6400*, or their equivalents. Introduction to measurement theory and the concepts of reliability and validity. Methods and development of assessing the quality of measurement in epidemiologic research. Special emphasis is placed on the consequences of measurement error for interpreting causal inferences concerning the effect of an exposure on a health outcome. Lecturers, discussions, homework assignments, and a final exam.

P8419 Biological aspects of psychiatric disorders
3 points.

This course is taught by faculty in the Division of Epidemiology and Department of Psychiatry and focuses on biologic and genetic factors in the development of psychiatric disorders. An overview of the basic theories, concepts, and methods in neuroanatomy, neurochemistry, neuroimaging, and psychiatric genetics is provided. While substantive findings are described, the emphasis is on methodological issues and the role of biological and genetic approaches in psychiatric epidemiology.

P8421 Introduction to clinical psychiatry for epidemiology and public health
3 points.

For nonclinicians being trained in psychiatric epidemiology to familiarize them with the major psychiatric clinical entities, with



A research finding has caught the attention of Professor and Division Head Ezra Susser, M.D., Dr.P.H. (right), Assistant Professor Sharon Schwartz, Ph.D. (center), and doctoral student Larkin McReynolds (left).

DSM-III, and relevant issues concerning diagnosis. Special clinical topics are developed concerning childhood psychopathology and geriatric psychiatry.

P8422 Perinatal epidemiology

3 points.

Prerequisite: *Public Health P6400*. A seminar on the events in the perinatal period both as outcomes of interest and as influences on child development. Topics to be covered include teratogenesis, reproductive loss, low birth weight, preterm delivery, and pre- and perinatal infections. Emphasis on issues of measurement and study design and the weighing of epidemiologic evidence.

P8432 Environmental epidemiology

3 points.

Prerequisites: *Public Health P6104* and *P6400*. A selected research topic in environmental epidemiology is discussed in depth each week, along with preassigned readings. Special emphasis is given to study design, exposure assessment, outcome definition, and sources of bias. Ongoing research at the Mailman School of Public Health is discussed and environmentally induced diseases (including asthma and other respiratory effects, cancer, and neurologic impairment) are emphasized. A paper outlining an original study design on an environmental topic of interest is required. A final comprehensive exam is the other basis for course evaluation.

P8438 Epidemiology II: design and conduct of observational epidemiology

3 points.

Prerequisites: *Public Health P6104* or the equivalent, and *P6400* or the equivalent. Aim is to provide students with the knowledge

and skills necessary to design, carry out, and interpret observational epidemiologic studies of chronic diseases. Topics include the development and operationalization of research hypotheses, design issues (cohort, case/control, cross-sectional, ecologic, etc.), basic analytic approaches, sampling, measurement, questionnaire design, and ethical issues in epidemiologic research. Lectures are accompanied by computer lab sessions, required readings, and weekly exercises. Evaluation is based on the exercises and a final exam.

P8440 Epidemiology of cardiovascular diseases

3 points.

Prerequisite: *Public Health P6400* or the equivalent. An overview of current epidemiologic knowledge of cardiovascular disease (CVD), including coronary heart disease, stroke, and hypertension, with the aim of providing familiarity with the scope and magnitude of the CVD problem, a working knowledge of the major and minor risk factors for the various manifestations of CVD, and an appreciation for the methodologic problems encountered in cardiovascular epidemiologic research. Lectures, presentations by invited speakers, and student presentations.

P8442 Epidemiology and control of tuberculosis

3 points.

Prerequisites: *Public Health P6104* and *P6400*. An in-depth look at the epidemiology and control of tuberculosis (TB). Students are lectured by specialists in the field of TB epidemiology, outbreak investigation, drug resistance, hospital-acquired infection, contact tracing, directly observed therapy (DOT), prevention, TB and HIV in the United States and abroad, BCG vaccination, treatment

recommendations, as well as the ethical issues of coercion related to DOT and the politics and perspectives for the future. Students are expected to master the field of infectious disease epidemiology as it applies to TB. Course readings cover state-of-the-art and historical articles. Evaluation is in the form of a midterm exam and a final paper.

P8455 The epidemiology of disabilities: counting the consequences

3 points.

Prerequisite: *Public Health P6400*. Intended for students whose careers may involve them in epidemiological, clinical, planning, or social issues related to disability from chronic illness, injury, or congenital impairments. Objectives are to understand the concepts of impairment, disability, and handicap (IDH) classification and how they relate to each other in terms of epidemiologic concepts of exposure, susceptibility, and risk; to explore the application of epidemiologic methods to IDH ascertainment; to use census, survey, and analytic studies relevant to clinical and social policies in the field of disability.

P8465 Epidemiology of HIV and AIDS

3 points.

A state-of-the-art review of the epidemiology of HIV infection and AIDS, with particular emphasis on the development of the epidemic in New York City. Lectures by leading experts in the field focus on the current status of infection in population groups and predictive models of future disease development. Additional topics include ongoing research on screening, surveillance, preventive education, and program evaluation. The student develops the ability to evaluate scientific publications and is prepared to participate actively in AIDS education or research at the applied level. The student is expected to demonstrate a thorough knowledge of HIV and AIDS by participation in class discussion and by exam.

P9400 Case studies in causal thinking for epidemiologists

4 points.

Prerequisites: *Public Health P8400* and two substantive courses in epidemiology. Intensive case studies involving the application of epidemiologic principles, with special emphasis on causal inference and judgments. All students prepare a succinct review of the case for each class. The case is placed in context by the instructor, is presented by at least two students, and is discussed by the class.

P9408 Epidemiology of communicable diseases II

3 points.

Prerequisites: *Public Health P6400* and *P8406*. For students who have already taken *P8406 Epidemiology of communicable diseases I* and who are presently conducting or are planning to conduct an epidemiologic study in communicable disease. Objectives are to understand transmission dynamics, to apply concepts of molecular epidemiology to communicable diseases, and to understand approaches to ecological study design and intervention evaluation. The grade is based on preparation of a research protocol or manuscript for publication.

P9419 Master's essay in epidemiology I

1 point.

A master's essay is required for both the M.P.H. and the M.S. degrees with a concentration in epidemiology. The essay may represent empirical research, a fresh analysis of existing data, or a theoretical treatise. The student first registers for a one-semester, 1-point course (*Master's essay in epidemiology I*) to develop a proposal in consultation with a faculty supervisor. This proposal is submitted to the Master's Programs Committee for approval.

P9420 Master's essay in epidemiology II

2 points.

Prerequisite: *Public Health P9419*. After the successful completion of *P9419 Master's essay in epidemiology I*, students may register for *P9420 Master's essay in epidemiology II* to carry out the actual writing of the essay under the guidance of the supervisor. The supervisor with a coreader reviews the master's essay.

P9446 Faculty-fellow seminar in psychiatric epidemiology

1 point.

Primarily for fellows in the Psychiatric Epidemiology Training Program. Presentation and discussion of ongoing faculty and fellow research plus guest speakers. Designed to provide constructive criticism of research in progress and to make fellows aware of current issues in psychiatric epidemiology.

P9480 Research seminars in epidemiology

One-half point each term.

Primarily for students with a concentration in epidemiology. Others welcome. Presentations on completed and ongoing research by faculty, invited speakers, and postdoctoral and predoctoral students. Exchanges on study design, data collection, and analysis and interpretation.

P9485 Advanced topics in epidemiologic methods

3 points.

Prerequisites: *Public Health P8120* and *P8438*. Designed specifically for advanced Epidemiology students, this course reviews selected classic and recent articles on epidemiologic methods. Structured as a reading seminar with a series of articles assigned each week focusing on a specific methodological topic that has given rise to substantial consideration and debate in the literature. Format is a one-hour lecture that provides an introduction to each topic. Students then divide into smaller discussion groups each led by a facilitator.

P6490, P8490, and P9490 Tutorials in epidemiology

1 to 6 points.

Tailored to the particular interests and needs of the individual student. May include literature review, research projects, field trips, or other special studies that enrich the student's program.

P9493 Topics in epidemiology of neurological disorders

3 points.

Prerequisites: *Public Health P6400* and *P6104*. Epidemiology of selected neurological disorders, including stroke, epilepsy, multiple sclerosis, motor neuron disease, myasthenia gravis, muscular dystrophy, primary brain tumor, Parkinson syndrome, dementia, and presumptive slow virus diseases. Paper and exam.

Also:

Offered through the Division of Population and Family Health:

P8679 Investigative methods in humanitarian emergencies

Offered through the Division of Environmental Health Sciences:

P8307 Molecular epidemiology

P8301 Gene environment interactions in human disease

Offered through the Division of Sociomedical Sciences:

P6781 The use of large scale national health care data sets

GENERAL PUBLIC HEALTH

Degree offered:

M.P.H.

PROGRAM IN GENERAL PUBLIC HEALTH

600 West 168th Street, 6th Floor
New York, NY 10032
(212) 305-5152

Program Director: Bernard Challenor, M.D., M.P.H.

Objectives

General Public Health is intended for candidates who already have health professional training and at least two years of public health experience. These candidates are generally seeking formal training in methods and issues addressed by several public health disciplines that would allow them broader participation in the field. Career needs of these candidates often require an interdisciplinary approach that goes beyond the scope of any single Division within the School. Drawing upon the educational resources of two or more Divisions, applicants to General Public Health are expected to identify their substantive area(s) of interest and the technical skills (administration, research, program development, etc.) they want to acquire from across the public health curriculum.

The General Public Health track is also available to students in the several dual degree programs offered by the School and is occasionally offered to students with other professional degrees (e.g., law, journalism, business) where an individualized, interdisciplinary curriculum is deemed particularly suitable.

Study may be done on a part-time or full-time basis.

Master of Public Health (M.P.H.)

Each student's program is planned individually and includes the School's core curriculum (biostatistics, epidemiology, environmental health sciences, health policy and management, sociomedical sciences) and other courses drawn from education resources at the School as well as other University units. Emphasis might be given to a substantive interdisciplinary area covered in the School's curriculum by a series of related courses. In addition, each student is expected to develop and demonstrate improved skills in some technical area, such as research design, program evaluation, health education, health program planning, or administration, and to select from the School curriculum, in consultation with an aca-

demic advisor, those courses that help meet this objective. A practicum may be required, and may provide opportunities to test and apply the academic training in the student's work setting; the practicum requirement may also be met through prior professional experience.

Course Descriptions

Note: Many courses require permission of the instructor/Division as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Services identifies courses that require permission prior to registration.

P6000 Perspectives in the history and philosophy of public health

3 points.

People, ideas, and institutions in the development of health care in various civilizations. Topics include concepts of disease and medicine in history; population and poverty; the founding of hospitals and asylums; industrialization, cities, and the sanitation movement; the rise of scientific medicine; state intervention in public health; social Darwinism, eugenics, and ideology; the birth control movement; the emergence of national health care systems; technology, environment, and values.

P6001 Perspectives in the history and philosophy of public health in the United States

3 points.

People, ideas, and institutions in the development of American health care. Topics include disease and social philosophy in early America; industrialization, medicine, and Jacksonian democracy; the sanitation movement, scientific medicine, and social Darwinism; race and eugenics; public health in the Progressive Era; immigration, poverty, and the birth control movement; the struggle for a national health system; the environmental idea; health and feminism; the concern for rights; values in biomedicine.

P6010 Educational interventions in the health care system

2 points.

The concept of health education in varied settings, such as the hospital, community, school, and family. Role-playing simulation exercises introduce particular situations to assist in identifying



Students take a moment to compare notes and exchange information.

points of educational intervention and to stimulate discussion of educational needs, potentials, and approaches. In-depth study of selected educational strategies.

P6011 Public health law

2 points.

An exploration of the legal aspects of public health enforcement and administration in a manner useful to the public health officer or other public health personnel. Lectures, seminars, and reports.

P8013 Health education: training techniques and approaches

3 points.

Training activities for health organization and group development. The term begins by faculty members engaging students in training exercises and moves toward students conducting the training. Enables students to identify principles underlying training for group and organization development; develop and adapt basic training techniques to health education settings; and conduct training exercises and utilize effective training approaches. Exercises, group work, lectures, audiovisual materials.

P8035 Ethical conflicts in human subjects research

2 to 3 points.

Emphasizes that true ethical dilemmas occur when two or more basic principles collide, e.g., the right to privacy vs. protection of the public's health. Human subject research presents its own set of conflicts. On what basis and in what forum should these conflicts be resolved? Focus on the application of basic principles to actual research being done or proposed to be done in New York City. Current case studies are used for discussion. Final grade based on 2 four- to seven-page papers and participation in classroom discussion.

P6090, P8090, P9090 Tutorials in general public health

1 to 6 points.

Tailored to the particular interests and needs of individual students, the tutorials take many forms—literature reviews, research projects, field trips, and other special studies or learning experiences. Their objective is to enrich the student's program. General public health subject areas for tutorials might include dental public health, health education, international health, nutrition, drug abuse, and other topical concerns not specifically dealt with in formal courses or in divisional or other study programs.

P8093 Tutorial in social medicine

2 points.

Public health students are invited to participate in the social medicine curriculum offered each Tuesday evening to the residents in family medicine and primary care of Montefiore Medical Center. The tutorial includes a series of six-week minicourses on complementary and alternative therapies, human sexuality, health in Latin America, gay and lesbian health issues, the health issues of blacks in the United States, advocacy and organizing, and racism and health. For public health students, a written "think piece" is required.

P6094, P8094 Tutorials in dental health

1 to 6 points.

Individually arranged projects concerning dental care and public health.

HEALTH POLICY AND MANAGEMENT

Degrees offered:

M.P.H., M.S., Dr.P.H.

DIVISION OF HEALTH POLICY AND MANAGEMENT

600 West 168th Street, 6th Floor
New York, NY 10032
(212) 305-3924

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Sherry A. M. Glied

B.A., Yale, 1982; M.A., Toronto, 1985; Ph.D., Harvard, 1990

Professor

Lawrence D. Brown

B.A., Harvard, 1969; Ph.D., 1973

Adjunct Professors

Howard L. Bailit

D.M.D., Tufts, 1962; M.S., Harvard, 1964; Ph.D., 1967

Joseph A. Califano

(in Psychiatry) B.A., Holy Cross, 1952; L.L.B., Harvard, 1955

Noreen M. Clark

B.S., Utah, 1965; M.A., Columbia, 1972; Ph.D., 1976

Mathilde Krim

(in Pediatrics) B.S., Geneva, 1948; Ph.D., 1953

Itzhak Sharav

B.A., New School for Social Research, 1960; M.B.A., Baruch, 1963; C.P.A., 1966; Ph.D., 1971

Jane E. Sisk

B.A., Brown, 1963; M.A., George Washington, 1965; Ph.D., McGill (Canada), 1976

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B.S., City College of New York, 1968; Ph.D., City University of New York, 1972

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B.S., Carnegie Mellon, 1963; M.S., 1966; Ph.D., 1967

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B.A., State University of New York (Stony Brook), 1970; M.S.S., Hebrew (Israel), 1972; Ph.D., Minnesota, 1982

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B.S.N., Niagara, 1959; M.P.H., Columbia, 1972; Ph.D., 1982

Richard J. Greene

A.B., Johns Hopkins, 1959; M.D., 1965; Ph.D., 1967

Joan M. Leiman

B.A., Wellesley, 1955; M.A., Columbia, 1958; M.Phil., 1975; Ph.D., 1977

Stephen N. Rosenberg

A.B., Cornell, 1963; M.D., Albert Einstein, 1967; M.P.H., Harvard, 1969

Associate Professors

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B.A., Hunter, 1957; M.D., State University of New York (Downstate), 1961; M.P.H., Harvard, 1963

Annetine C. Gelijns

(in Surgery) L.L.B., Leyden, 1980; L.L.M., 1983; Ph.D., Amsterdam, 1991

Michael S. Sparer

B.A., Beloit, 1977; J.D., Rutgers, 1980; Ph.D., Brandeis, 1992

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Harold Fruchtbaum

(History and Philosophy of Public Health) B.C.E., New York University, 1955; M.S., Rensselaer Polytechnic Institute, 1956; Ph.D., Harvard, 1964

Lois A. Grau

B.S.N., Marquette, 1968; M.S., Wisconsin, 1976; Ph.D., 1979

Lloyd F. Novick

B.A., Colgate, 1961; M.D., New York University, 1965; M.P.H., Yale, 1971

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B.A., Hofstra, 1968; M.B.A., Baruch (CUNY), 1973

Associate Professor of Clinical Public Health

Alan Jay Moskowitz

(also Medicine) (in Surgery) B.A., University of Vermont, 1974; M.D., New York Medical College, 1978

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B.A., St. John's, 1972; M.P.A., City University of New York, 1977; M.Ed., Columbia Teachers College, 1988; Ed.D., 1991

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(also Ophthalmology) B.S., Colgate, 1971; M.P.H., Harvard, 1974; M.D., Virginia, 1975

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B.A., Amherst, 1992; M.S., Northwestern, 1997; Ph.D., 1999
- Dahlia Remler
B.S., California (Berkeley), 1985; D.Phil., Oxford, 1989; Ph.D., Harvard, 1994
- Joshua Zivin
B.A., Rutgers, 1993; M.S., California (Berkeley), 1994; Ph.D., 1998

Visiting Assistant Professor

- Volker Amelung
Ph.D., M.B.A., University Gall, Switzerland, 1987

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- Donald L. Ashkenase
B.S., Brooklyn, 1965; M.B.A., Wagner, 1974
- John E. Baer
B.A., Oberlin, 1959; M.S., Columbia, 1961; D.P.A., New York University, 1967
- Willine Carr
B.A., North Carolina (Greensboro), 1967; M.P.H., North Carolina (Chapel Hill), 1970; M.P.H., Columbia, 1982
- Annette Choolfaian
B.S., Bridgeport, 1964; M.P.A., New York University, 1972
- Merle C. Cunningham
B.A., Rochester, 1967; M.D., 1977; M.P.H., Columbia, 1976
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B.B.A., City College of New York, 1952; M.S., Wisconsin, 1972
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B.A., Princeton, 1980; M.D., Columbia, 1984; M.P.H., 1988
- Jeffrey S. Markowitz
B.A., Queens, 1972; M.P.H., Columbia, 1980; Dr.P.H., 1988
- Marcia L. Pinkett-Heller
B.A., Howard, 1963; M.P.H., Michigan, 1970
- Arnold E. Rosenblum
B.A., Brooklyn, 1947; J.D., New York University, 1950; M.S., Columbia, 1964
- James R. Tallon Jr.
B.A., State University of New York (Syracuse), 1963; M.A., Boston, 1967
- Eileen Tynan
B.A., Marymount Manhattan, 1966; Ph.D., Colorado, 1981
- Michael L. Ziegler
B.A., State University of New York (Albany), 1972; J.D., State University of New York (Buffalo), 1976; M.P.H., Columbia, 1978

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Georgina P. Zabos

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Assistant Clinical Professors

- David A. Albert
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- Joseph d'Oronzio
B.A., Syracuse, 1959; Ph.D., 1965; M.P.H., Harvard, 1980
- David L. Ginsberg
B.Arch., Cornell, 1955
- Daniel W. Morrissey
M.A., Pontifical Faculty of St. Thomas Aquinas, 1958; M.A., Aquinas Institute of Theology, 1962
- Richard S. Thomas
B.Arch., Pratt Institute, 1968; M.B.A., New York University, 1986

Senior Lecturers

- Ellise S. Delphin, M.D., M.P.H.
Thomas J. Foley, M.S.
John Kastan, Ph.D.
David G. Pockell, M.S.
Frederick Putney, Ph.D.

Lecturers

- Frederick D. Alley, M.S.
Barbara Bengen, M.B.A.
Matthew Borsch, M.B.A., M.P.H.
Robb K. Burlage, Ph.D.
Pinka Chatterji, Ph.D.
Benjamin Chu, M.D.
Ronald B. Dreskin, M.B.A.
Nicholas Freudenberg, Dr.P.H.
Gary Gambuti, M.P.H.
Katherine E. Garrett, M.B.A.
Jordan D. Haller, M.D.
James T. Harden, M.B.A., M.P.H.
David Harris, M.D., M.P.H.
Stan W. Kachnowski, M.A.
Florence Kavalier, M.D., M.S., M.P.H.
Edward L. Kleinert, M.P.H.
- Thomas Kramer, Ph.D., M.P.H.
David E. Leach III, J.D.
Arthur A. Levin, M.P.H.
Jacob J. Lindenthal, Dr.P.H.
Robin A. Maley, M.P.H.
Robert Markowitz, M.S.
Ruth Martin, M.B.A., M.P.H.
Glenna R. Michaels, B.A.
Donna O'Hare, M.D.
Katherine Puder, M.S., M.P.H., Dr.P.H.
Annette Ramirez De Arellano, Dr.P.H.
Alan H. Rosenblut, M.B.A.
Norman D. Schwartzben, M.S.
Alvin Strelnick, M.D.
Linnette Webb, M.P.A.
Elaine M. Wolfson, Ph.D.

Associates

- Susan Browning, M.P.H.
Judy Liu, M.P.H.
Dennis P. Novick, M.P.H.

Instructor

- Ilona W. Surick, M.D., M.P.H.



Professor Sherry Ghed, Ph.D., a health economist and Head of the Division (center), reviews curriculum and scheduling issues with Professor Sheila Gorman, Ph.D. (left), and Program Coordinator Alicia Benjamin-Stennett (right).

EXAMPLES OF FACULTY AREAS OF EXPERTISE

Health care reform and related political issues; the uninsured; competition and regulation; comparative health systems; public health practice; state and local efforts to deal with the health care crisis; the role of managed care in reform; health care cost containment, including utilization review, managed care, and second surgical opinions; improving quality of health care, including total quality management and methods of assessment; women's health policy and research; issues in women's health, particularly occupational health and gender bias in research; organization of work and occupational health management; AIDS public policy, testing, and forecasting; health care costs and financing; substance abuse policy issues; issues in Medicare and Medicaid programs; collective bargaining in health care; human resources planning and forecasting, including shortages of health care providers; the economics of medical technology; national and international assessment of health care technology; national and international comparisons of payment and use of preventive services.

Objectives

Health Policy and Management encompasses studies in the formulation and implementation of health care policy and the planning

and management of the increasingly diverse range of institutions that provide health care. The growth of the health services sector demands a better understanding of the production and distribution of care and of how to gauge its effectiveness in relation to costs. Just as policy makers should be trained to examine the feasibility of their goals in the light of managers' capacities and constraints, so too managers should be equipped to understand the policy projects that increasingly define the environment in which they work. The Division's programs provide students with analytical skills and methodological tools useful to policy makers and managers in the public, voluntary, and private sectors. Faculty members represent several disciplines in the health professions and in business, the social sciences, and law.

Master of Public Health (M.P.H.)—Full Time Only

The program in Health Policy and Management seeks to give students the analytical and practical skills they need to effectively discharge policy-making and managerial roles in a broad range of health care institutions.

The program has a 45-point curriculum that includes a public health core and a health policy and management core (HPM). Students enter in September and generally complete the program by the following January. The HPM core includes health economics, accounting and budgeting, research techniques, health policy, strategic analysis, and health care quality assessment. Students select one of three concentrations: management, policy, or effectiveness and outcomes research.

Students focusing on management take organizational behavior, financial analysis, and managing complex organizations. Those concentrating in policy take technology assessment, comparative health systems or cross-national health policy, and health care lessons from the states or political economy of health care.

The effectiveness and outcomes research concentration includes courses in technology assessment and economic evaluation, quality of life assessment in health and aging, and applied quantitative analysis. It is limited to ten new students per year.

Students in all concentrations will complete a four-month practicum, normally in the summer between the second and third semesters. The practicum gives students practical experience, under the supervision of an experienced researcher or administrator, in applying concepts learned in the student's area of concentration. Students have the opportunity to integrate and apply knowledge gained in the classroom and to obtain the practical skills necessary for management and policy positions.

Students in management and policy who do not have previous administrative experience in health institutions may take a nine- to twelve-month residency upon completing the coursework portion of the M.P.H. program. The residency program fulfills the practicum requirement. Residencies are available in hospitals, long-term care facilities, public agencies, and other health related settings.

Executive M.P.H.

The Executive M.P.H. Program in Health Services Management is a two-year course of study designed for the experienced student with a full-time job. Executive students enter each September and attend classes one long weekend each month as an integrated group. When classes are not in session, students may communicate with each other, the program coordinator, and faculty, using a computerized bulletin board.

The 45-point curriculum includes 16 required courses divided among 12 points in a public health core, 18 points in the health policy and management core, and 15 points of advanced management courses.

Master of Science and Doctor of Medicine/Dentistry

This new program is designed for medical and dental students who wish to acquire the skill and discipline needed to direct and manage the health care system of the twenty-first century and are willing to lengthen their medical or dental education by one year. The dual degree program leading to the Master of Science in Health Policy and Management has a 60-point curriculum that includes 12 points in a public health core, 15 points in a health policy and management core, 9 points of electives, and 9 points of advanced standing for medical/dental coursework. Electives will include two courses and a three-month practicum integrated with clinical rotations. Practicums will be set up under the guidance of a physician or dental-administrator preceptor on an individual basis depending on student interests and professional goals and objectives.

Doctor of Public Health (Dr.P.H.)

The Dr.P.H. in the Division of Health Policy and Management is a professional degree designed for students who have acquired an M.P.H. or equivalent degree, have held jobs in the fields of health policy or management, and seek to gain deeper intellectual command of topics central to these fields. Candidates for the Dr.P.H. are expected to gain substantial general factual knowledge

of the workings of the U.S. health care system and some familiarity with systems in other Western nations; to learn the analytical frameworks of major intellectual disciplines (especially the social sciences) that are of special help in understanding and explaining the workings of health care systems; to apply these discipline-based frameworks to a research topic on American or cross-national themes, pursued in a dissertation that constitutes an original scholarly contribution; to develop the analytical skills in qualitative and quantitative research techniques and methods to become critical and sophisticated consumers and critics of the literature of health policy management; and to bring their work to bear on important theoretical or practical problems in the real worlds of health policy and/or management.

Upon successful completion of coursework, students take written and oral comprehensive examinations that test their grasp of the relevant disciplines and their knowledge of health care systems. Those who pass become official candidates for the Dr.P.H. and proceed to the dissertation stage. During the dissertation stage, candidates participate in the Division's doctoral seminar.

Course Descriptions

***Note:** Many courses require permission of the instructor/Division as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Services identifies courses that require permission prior to registration.*

P6503 Introduction to health economics

3 points.

Economic analysis offers an analytic approach to problem solving which is particularly useful in thinking about the financing and delivery of health services. The course covers relevant aspects of microeconomic theory and their application to health care issues. Students are evaluated on the basis of homework assignments, a midterm, and a final exam.

P6508 Health policy and the political system

3 points.

Analysis of the role of major institutions—the central government, the federal system, the private sector, interest groups—in formulating and implementing health policy in the United States. Discussion of underlying normative issues, cross-national perspectives and the ups and downs of health care reform. Lectures and discussion. Midterm and final exams required.

P6513 Hospital organization and management

3 points.

Administrative elements of hospital functions, including background and theoretical concepts, and opportunities for examination and open discussion of the issues and problems of hospital management. The approach is from the general to the particular, to provide students with a workable overall knowledge of hospital organization as well as more particular insight into certain typical and key departments.

P6514 Legal aspects of hospital administration*3 points.*

The rights and obligations arising out of the relationships among the hospital, the professional staff, and the patient; the right to care; negligence and malpractice; consents for medical care; medical records; abortion; death and dying; advanced directives.

P6517 Legal aspects of health services administration*2 points.*

Legal responsibilities and liabilities in relation to consumers and providers of health services. Topics include licensure, malpractice, negligence, and death.

P6518 Health care facilities planning*3 points.*

No prerequisite, but *Public Health P6503, P6513, P6525, and P6529* are desirable. Policy, politics, demographics, economics, organization, management, and operations merge in the programming, planning, design, financing, and construction or renovation of health facilities. Management tools, strategy, concepts, terminology, standards, and techniques are outlined in theory and case study.

P6525 Government regulation of health care*2 points.*

Government regulation of health care delivery organizations. Major foci on reimbursement and licensure regulations. Emphasis on a legal analysis of the present state and visible trends of these types of regulations as they interact with short-term general hospitals.

P6529 Accounting and budgeting for health administration*3 points.*

Financial statements enable us to evaluate the performance of an enterprise, analyze its cash flow, and assess its financial position. Budgets, based on forecasts, take the form of projected financial statements and serve as an important managerial tool for planning and control purposes. The course examines the generally accepted accounting principles (GAAP) underlying the statements and their implementation in practice. It also notes the limitations of financial reports and their evolution in response to changing business conditions. Attention is paid to the special and occasionally different use and implementation of GAAP by not-for-profit organizations in general and providers of health care services in particular. Midterm and final exams.

P6530 Issues and approaches in health policy and management*3 points.*

Satisfies the Health Policy and Management core requirement for the M.P.H. degree. Lectures, team projects, and readings on administrative problems and interventions that affect, and are affected by, all public health practitioners, as they seek to improve health care delivery, health care, and the health status of populations. Taught in both Executive and traditional formats. Individual papers required.

P6532 Human resources management in health care institutions*3 points.*

Familiarizes the student with the field of human resource management through an examination of the major components of labor law, collective bargaining, and labor relations. The course demonstrates the need to plan and direct the relationship of labor and management in order to develop and utilize an effective work setting; provides the student with an understanding of the dynam-

ics of labor relations and the environment in which the legal structure operates; identifies the problems resulting from the efforts of government to define the rights, duties, and obligations of labor relations and collective bargaining; explores the evolution and current problems of collective bargaining, emphasizing the major trends of the law, the reason for these trends, and their consequences on the overall function of labor relations in the health care field.

P6560 Organization theory*3 points.*

An introduction to the classical and contemporary concepts of organization and management theory. Theoretical and empirical aspects of organizational design, function, and behavior, as well as the behavior of persons who work in organizations. Develops analytical skills to enable students to apply theoretical concepts to real-life managerial problems. Take-home midterm and in-class final exam.

P8500 Health care delivery systems: safety and efficacy of medical technologies*2 points.*

Prerequisite: completion of M.P.H. core courses. A conceptual framework for medical technology assessment is presented, technologies needing assessment are identified, and types of information needed and mechanisms for testing are reviewed, including health, economic, and social effects. Case studies of safety and efficacy are presented and evaluated, as well as current activities in this field by both the public and private sectors. Shortcomings of the present system, as well as policy alternatives, are reviewed. Several sessions are devoted to the safety and efficacy of prescription and nonprescription drugs in the context of the United States and world pharmaceutical scenes; the costs and financing of drug-related services are reviewed in detail. Seminar format.

P8501 Comparative health systems*3 points.*

Prerequisite: *Public Health P6530*. In-depth discussion of the health care systems of several countries, both developed and developing, including: the United States, Canada, Great Britain, China, Cuba, Sweden, and South Africa, as examples. Consideration is also given to health issues of international importance, such as hunger and famine, U.S. and Western donor health policies and the Third World, and the health effects of structural adjustment programs. Seminar and group discussion format.

P8502 Research techniques and applications in health services administration*3 points.*

Prerequisites: *Public Health P6103 or P6104* and a working knowledge of a spreadsheet computer program (e.g., Excel or Lotus 1-2-3) or a statistical software package. Fundamental principles of research methods are applied to problems in health policy and management. Through analysis of research reports and manipulation of data sets, students learn elements of research design and how to apply statistical analyses using statistical software. Successful completion of the course should enable the student to apply critical analysis to the relevant literature. Students work individually or in groups on assigned projects. Each individual/group writes a research report on at least one data set. Midterm and final exams on basic methodological approaches are given.

P8505 Managed care*3 points.*

Prerequisite: *Public Health P6530*. Managed care under current pluralistic systems of health care and insurance, the organizational forms managed care may take, and its potential as a health care delivery system. Existing prototype managed care programs examined. Lectures, seminars, and readings. Paper required.

P8510 Assessment of health care*3 points.*

Prerequisite: *Public Health P6530* or the equivalent. Provides a general introduction to and overview of the measurement of quality in all parts of the health care delivery system: from primary care to acute and long-term care, behavioral health care, and chronic disease. Includes seminar discussions, team exercises, actual hands-on experience in developing appropriate measures of performance, and presentations by project teams.

P8511 Health care policy: lessons from the states*3 points.*

Designed (1) to analyze the relationship between American Federalism and health care policy, from the 18th century to the present; (2) to examine the efforts of several states to adopt innovative health reform programs; and (3) to consider the role states should play in a reformed health care system. As part of this inquiry, the class examines Medicaid Managed Care initiatives, long-term care policy, medical workforce policy, welfare, and insurance reform initiatives. Midterm and final exams; students may write a research paper as a substitute for the midterm.

P8513 Health care marketing*3 points.*

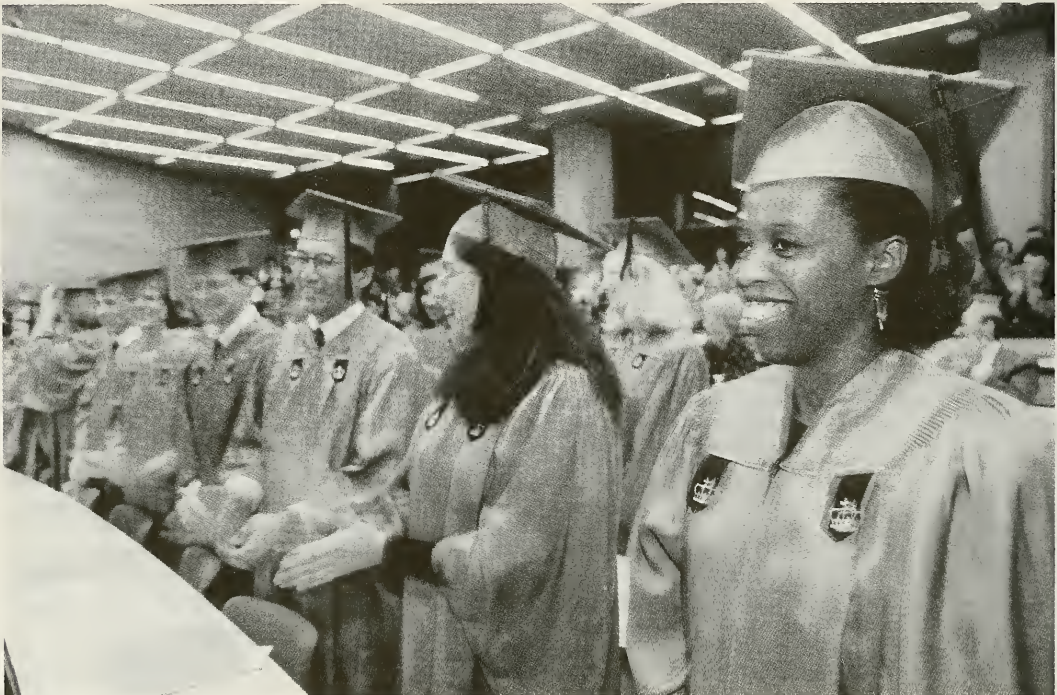
Marketing is now a key growth driver for all health care sectors. Course covers marketing strategy for all players, from hospitals to physician practices and pharmaceutical firms. Students learn to analyze and segment the consumer and professional markets, to develop and position a product/service portfolio, and to create a marketing plan including use of new media such as the Internet. An interactive, multimedia approach, including current managerial readings, cases, and videos sourced globally, and senior health care executives as guest speakers. Students customize the course to their needs through a consulting project for an actual health care organization (in lieu of a final exam). Assignments include a short midterm exam and an oral case presentation.

P8517 Complex health care organization and its management*3 points.*

Prerequisites: *Public Health P6513* and core courses. Coordination, at a more advanced level, of the learned concepts of complex health care delivery organizations and their management. Regulation, multi-institutional arrangements, administrative ethics, control, corporate organization, materials management, marketing, reimbursement, contract management, unions, legal issues, planning.

P8519 Master's essay in health policy and management*0 to 3 points.*

Students obtain experience in preparing concise, well-documented, written presentations on a topic of significance or interest in the field of health policy and management.



Division of Health and Management students applaud their successful completion of the Executive Master in Public Health program in Health Services Management.

P8527 Contemporary dilemmas in health planning, policy, and management

1 point.

Course material derived from current health services. Primary emphasis on New York City.

P8531 Seminar in health policy and analysis

3 points.

Prerequisite: *Public Health P6503*. Develops skills in the analysis of public policy toward health care, through readings and seminar discussion, critiquing examples from the literature, and through independent research. A major paper, presented to the class, is required. Topics include nursing home regulations, hospital cost control, Medicaid reform, regionalization, and other topics determined by the class.

P8533 Health care financial management

3 points.

Prerequisite: Courses in general accounting or finance. Economics and biostatistics courses are helpful but not required. Provides students with an understanding and appreciation of health care strategic financial planning and management. Topics to be covered include the financial planning perspective of executive decision making, physician/hospital integration analysis, reimbursement methodologies, cost allocation strategies, capitation, and risk sharing. Current and proposed federal and state regulations and their impact on the health care industry are discussed.

P8534 Information management

3 points.

Focus on training the health care executive how to manage the selection and staffing of health information systems (HIS) in a variety of organizations, including HMOs, Internet companies, employers, government, pharmaceutical concerns, MSOs, IDNs, hospitals, long-term care facilities, bio/med-tech firms, physician practices, IPAs, pharmacies, PPOs, and consumer health groups. Readings and lectures focus on the nature and the uses of health care information systems in these settings. Develops skills to (1) coordinate the information systems plan with the organizational plan, (2) perform HIS needs analysis, (3) develop and implement HIS RFP, (4) understand fundamentals of HIS terminology and project management.

P8537 The political economy of health care

3 points.

An overview of health policy issues in the financing and reform of the U.S. health care system, with major foci on workforce issues, technology, academic health centers, and chronic disease, in which the tensions between managed care and the competitive market are assessed in terms of the trend of government to finance about half of all national health expenditures.

P8539 Health policy and disadvantaged groups

3 points.

Explores the past, present, and future of health policy (public, voluntary, and private) for a range of groups that are at least, in part, significantly disadvantaged. The groups to be discussed are the elderly, children, the drug dependent, people with AIDS, the hungry, the homeless, the mentally ill, the medically uninsured, and the disabled. Ideally, the class better equips students to think through and debate some major challenges facing health care policy makers and managers. Student participation encouraged. Midterm and final exam or paper.

P8541 Technology assessment and economic evaluation

3 points.

Prerequisite: *Public Health P6503* or permission of the instructor. The course reviews issues and methods of assessing health care technologies and related programs. It emphasizes methods to perform economic evaluations, including cost-effectiveness and cost-benefit analysis; methods to assess efficacy, effectiveness, and safety of health care technologies; effectiveness research; and applications to clinical and public policy. Term paper, critical appraisals of articles, and in-class participation.

P8549 Organizing and implementing ambulatory programs

3 points.

The organization and implementation of ambulatory programs is intensively studied using free-standing and hospital-based home health agencies and ambulatory surgery facilities as examples. The course is practical in its orientation but strongly theoretical in the development of a foundation for an overall program management strategy. Students are primarily evaluated on their ability to develop a business plan for creating a new ambulatory service entity. Students use spreadsheet software to determine the financial feasibility of their proposed business entity.

P8558 Strategic management

3 points.

Prerequisite: *Public Health P6530* or the instructor's permission. The course has two primary objectives: (1) to introduce and apply analytical frameworks used in formulating and implementing strategies at the general manager/senior executive level, and (2) to integrate managerial skills acquired in other courses and through personal experience. It considers questions of mission and values and questions of strategy and operations. It covers both strategy formulation and strategy implementation. It emphasizes the multiple, complex requirements of the leader/manager's job: analysis, creativity, and action. The course uses a combination of cases, readings, lectures, discussions, and reports. Students are expected to take an active role in each session. Written case analyses, in-class participation, and individual written assignments.

P8560 Collective bargaining in health institutions

3 points.

The process of collective bargaining, its characteristics and place in our society, and the dynamics of labor relations and the environment in which the legal structure operates; the evolution and current problems of collective bargaining, the reason for these trends, and their consequences for the overall function of labor relations.

P8563 Integrated delivery systems and managed care

2 points.

Managed care is one of a number of factors that are influencing changes in the health care industry, and many of these influences are far more powerful. Therefore, managed care cannot adequately be studied in the absence of a comprehensive and detailed understanding of the structural changes through which the industry is going. The objective of this course is to identify and analyze the changes that are occurring in the industry, the underlying reasons, including managed care, and what the probable outcomes may be. PHOs, POS, MSOs, and other organizational responses to these external and internal pressures are analyzed. Managed care is also explored on a detailed basis, including benefits, acceptance of risk, actuarial issues, capitation, marketing, and management. Student evaluation is based on class participation, a research paper, and a final exam.

P8565 Total quality management*3 points.*

Prerequisite: *Public Health P6530*. A practical introduction to the concepts, methods, and techniques of quality improvement in health care. Emphasis on theories and techniques for effective team work, and on approaches and tools for process-based performance improvement. Students are expected to relate topics covered in class to current or recent work experience. Seminar discussions, group exercises, readings, guest speakers. Self and peer evaluations, class participation, written assignments, and a final team project.

P8568 Physician practice management*3 points.*

Includes discussion of the organization and management of individual and group practices from a financial and service delivery perspective. A model for evaluation of physician practice is presented and students use the model to analyze an actual physician practice. Emphasis is placed on financial performance of the practice, physician productivity, and organizational aspects of physician practices. Each student performs a detailed evaluation of an individual or group practice which forms the primary basis for evaluation.

P8575 Cross-national health policy*3 points.*

Surveys the policy responses of a range of nations to the strains imposed by the evolution of modern health care systems. Students isolate the most salient pressures for policy change, trace the debates over and emergence of major strategic options, seek to explain why nations differ in their policy choices, explore the pros and cons of some of these approaches, and draw implications for U.S. policy debates. Students should leave the course with an enhanced understanding of the range of strategic responses to the major policy problems facing modern societies, and this understanding should help them to comprehend more fully both the dynamic environment in which they work and the complexities of health care reform.

P8580 Ambulatory-care information systems*3 points.*

An introduction to the effective and efficient use of information systems in the health care sector. Systems analysis theories, concepts, and techniques pertinent to the health care administrator are presented. Essential elements of design, development, and implementation of hospital information systems, as well as their potential problems, are also discussed. Although the material is technical in nature, the objective is not to train systems technicians, but rather to instill the skills necessary to improve the health administrator's ability to manage the planning and/or administration of an effective health information and decision support system. Instruction consists of lectures, class discussions, and case analysis. This eclectic approach is supplemented with outside readings and information hardware and software experiences using various systems.

P8581 Practicum seminar in health policy and management*1 point.*

Required seminar for M.P.H. students in Health Policy and Management to take in the fall following their summer practicum experience. Objective is to integrate students' knowledge gained through their practicum experience with readings and discussions in the fields of health management and policy. Weekly presentations given by students, faculty, or preceptors. Each student develops a

case study of his/her practicum experience. Practicum preceptors (generally alumni) and relevant faculty members provide feedback. Weekly readings based on a reading list developed by student/faculty presenters. Students learn to develop case study methodology and to create effective presentation styles. Enables students to integrate practical experiences with public health principles taught within the academic program.

P9500 Doctoral reading seminar*0.5 points.*

This seminar is prerequisite to *Public Health P9502*. Both *P9500* and *P9502* are required of first-year doctoral students. Readings in health administration research are selected by the faculty at large and coordinated by one or two faculty members in order to expose the students to a broad range of subjects. Students are expected to discuss and critically analyze theory and method in health policy and management with guidance from relevant faculty members. Intended to serve as an area for discussion and inquiry regarding both current and historical issues in health administration policy and research.

P9502 Doctoral research seminar*0.5 points.*

This monthly seminar is limited to Dr.P.H. students in Health Policy and Management, who are required to enroll for credit for four semesters (first two years of study), and then continue to attend as auditors during every semester until they have satisfactorily completed the qualifying examinations. Presentations on current research and the research process by advanced doctoral students, faculty, and guest lecturers and discussion of research issues are intended to aid students in formulating and carrying out dissertation research. Presentation required.

P9550 Alternative delivery systems*3 points.*

An examination of the development and effectiveness of several nontraditional forms of health care delivery, including health maintenance organizations, preferred provider organizations, surgicenters, investor-owned hospital chains, free-standing birthing centers, and urgent care centers. Consideration is also given to substance abuse treatment programs and a national global-budgeted program with salaried physicians, such as the Veterans Administration. The implications of alternative delivery systems for quality of care, equity in access, service to the disadvantaged, and health care expenditures are discussed.

P6590, P8590, P9590 Tutorials in health policy and management*1 to 6 points.*

Tailored to the particular interests and needs of individual students. They may take many forms—literature reviews, research projects, field trips, other special studies, or learning experiences. The objective is to enrich the student's program.

P9594 Tutorial: advanced research techniques in health policy and management*3 points.*

Prerequisite: *Public Health P8502*. Presentations of advanced research techniques in health policy and management. Students work in groups or individually on the planning and design of a research study, and on the execution of every step except actual data collection. Each group or person prepares a report on the objectives, detailed plans, and significance of the research.

POPULATION AND FAMILY HEALTH

Degree offered:

M.P.H.

DIVISION OF POPULATION AND FAMILY HEALTH

60 Haven Avenue, B-3
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Professor and Division Head

James McCarthy (Harriet and Robert H. Heilbrunn Professor)
A.B., Holy Cross, 1971; M.A., Indiana, 1972; Ph.D., Princeton,
1977

Professors

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B.A., Sterling, 1969; M.A., Illinois, 1971; Ph.D., 1974; M.B.A.,
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(Nutrition) B.A., Beirut, 1950; M.S., 1952; M.D., State University
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Allan Rosenfield (Joseph Delamar Professor and Dean)
(also Obstetrics and Gynecology) B.A., Harvard, 1955; M.D.,
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Adjunct Professors

Joy G. Dryfoos
B.A., Antioch, 1951; M.A., Sarah Lawrence, 1966

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B.A., Florida, 1965; M.S., 1966; Ph.D., 1968

Professors of Clinical Public Health

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Brown, 1986

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Mawr, 1976; M.A., Michigan, 1977; Ph.D., 1980

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B.A., Barnard, 1972; M.P.H., Columbia, 1982; Dr.P.H., 1998

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Clinical Professors

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B.A., Washington University, 1991; M.A., University of Wisconsin (Madison), 1993; Ph.D., 1997

Special Lecturers

Rosemary Barber-Madden, Ed.D. (Professor Emerita)

William A. Van Wic, Dr.P.H.

Senior Lecturers

Barbara Blum, B.A.

Barbara Harrell-Bond, Ph.D.

Steven W. Sinding, Ph.D.

Michael J. Toole, M.D.

Lecturers

Dennis Carlson, M.D.

M. Barbara Ciatelli, M.A.

Robert Karp, M.D.

Joyce Leung, R.D., M.S., M.P.H.

Jean Pakter, M.D.

Barbara E. Swartz, J.D.

Joseph R. Vasselli, Ph.D.

EXAMPLES OF FACULTY AREAS OF EXPERTISE

Women's sexual and reproductive health: STDs and AIDS, pregnancy prevention, abortion, maternal mortality. Women's fertility behavior: contraceptive use, pregnancy resolution, use of prenatal care, sterilization, acceptance and use of new contraceptive technologies. Adolescent sexual and reproductive behavior with a focus on adolescent males as well as females. Child health with a focus on early childhood interventions. Reproductive rights as human rights in a global perspective. Women's health and population policy in a global perspective. Domestic and international reproductive and child health programs and delivery systems: family planning, pregnancy prevention, maternal mortality, primary health care, early childhood intervention, school-based adolescent health clinics. Forced migration and health, including investigative methods in complex emergencies, reproductive health for refugees, and the psychosocial impact of forced migration.



*Students learn about two of the Division's international health projects, *Forced Migration and Health* from Assistant Clinical Professor Therese McGinn, M.P.H. (left), and *Averting Maternal Mortality and Death*, a program led by Professor Deborah P. Maine (right) and the Dean of the School, Allan Rosenfield.*

Objectives

The Division of Population and Family Health addresses the reproductive, adolescent, and child health conditions that confront communities throughout the world, both settled communities and communities that have been displaced as a result of political or environmental emergencies.

The strength of this Division's academic programs is its practice-based training model which provides a finely tuned balance of theory and practice. The integration of teaching, research, and service activities provides unique learning opportunities for students. The Division runs a variety of community-based reproductive, adolescent, and child health programs in northern Manhattan which provide valuable opportunities for training students and for conducting service-based research. The multidisciplinary faculty and students are involved in the following activities: program development, implementation, and evaluation; policy analysis; and program-based and more basic research. These activities are conducted at the local, city, state, and national levels as well as in many regions of the developing world, including Africa, Southeast Asia, and Latin America.

The Division of Population and Family Health (DPFH) aims to provide leadership in the search for solutions to the critical public health problems in the fields of reproductive, adolescent, and child

health as well as in forced migration and health in a global context. In the program, students will acquire the necessary base of knowledge, skills, and broader perspectives to develop and implement policies, programs, and research within these areas. Upon completing the program, students assume roles as policy makers and analysts, program developers, administrators, evaluators, and applied researchers within the fields of reproductive, adolescent, and child health. Graduates are employed in a variety of federal, state, local, and international governmental and nongovernmental organizations, service delivery programs, humanitarian and research organizations.

Master of Public Health (M.P.H.)

PROGRAM ON REPRODUCTIVE, ADOLESCENT, AND CHILD HEALTH

The Division's academic program is designed to prepare public health professionals to assume leadership positions in the fields of reproductive, adolescent, and child health. To do so, it provides them with the necessary theoretical and broader sociocultural perspectives; technical and substantive knowledge; and program and research skills.

The Division offers a core curriculum within the M.P.H. degree program which incorporates both domestic and international perspectives. Requirements are concentrated in four areas of study: technical knowledge; substantive knowledge; research methods, including program evaluation; and skills courses in

program development and management. The training program is closely linked to the Division's domestic service delivery programs, and students are required to become involved in those programs through a supervised practicum placement. Additional involvement is encouraged through internships, tutorials, and graduate research assistantships.

Subject areas, presented in both domestic and international perspectives, include: sexual and reproductive health; adolescent health; child health; population studies; health and human rights; program development; program evaluation; management of health care organizations; service-based research design, instrument development, data collection, and data analysis; and forced migration and health. Supplementary knowledge and skills can be gained through courses in other programs including: epidemiology, biostatistics, health policy and management, sociomedical sciences, anthropology, sociology, international public affairs, and health education (at Teachers College, Columbia University).

The Hispanic Fellowship Program is open to all applicants with prior public health work experience with Hispanic populations and a commitment to serve Hispanic populations in the future. A particular focus of the Division is serving a low-income, immigrant Hispanic community in northern Manhattan. Through reproductive, adolescent, and child health programs run by the Division of Population and Family Health, fellowship recipients will be provided with rich and varied training opportunities while completing 45 points of M.P.H. coursework with full tuition support and research assistantship opportunities. Contact the Division for application materials.

PROGRAM ON FORCED MIGRATION AND HEALTH

The Program on Forced Migration and Health offers a Master of Public Health degree through the Division of Population and Family Health. Courses organized by the program focus specifically on the relationship between forced migration and health. An emphasis is placed on quantitative and qualitative methods that are best suited to the assessment of health needs, and to the design and evaluation of health programs.

Subject areas include an introduction to the relationship between forced migration and health, investigative methods in humanitarian emergencies, the psychosocial impact of forced migration, reproductive health among refugee and war-affected populations, and health and human rights for refugees. The program also organizes a weekly seminar series, where students have the opportunity to meet professionals in the field.

Applicants to the Program on Forced Migration and Health must meet all of the regular requirements of the Master of Public Health program. Students who will benefit most from the program are those who have some experience in international humanitarian relief (either at headquarters-level or in the field) and those who wish to pursue careers as health workers in the field.

Admission is for the fall term only.

Services identifies courses that require permission prior to registration.

P6610 Population studies

3 points.

Examines the determinants and consequences of the factors contributing to the growth of human populations. Components of population growth to be addressed are fertility, mortality, and migration. Examination of these topics considers how different social science theories have viewed population growth, and how these views have influenced population policies and programs. Selected case studies of specific components of population growth in particular countries are presented throughout the course. By the end of the course, students should be able to use these perspectives to aid their understanding of population patterns and trends.

P6621 Technical issues in reproductive health

2 points. Quarter course.

Introduces students to the major issues concerning the technical and public health aspects of reproductive health, including the fundamentals of pregnancy, contraception, abortion, sexually transmitted diseases, and major reproductive health hazards.

P8601 Program design in sexual and reproductive health

3 points.

Students learn to design a viable and culturally appropriate sexual and reproductive health program, within both U.S. and developing country contexts. Students develop skills in analyzing local needs and resources; articulating program goals and objectives; designing relevant program components; planning program monitoring and evaluation; and raising funds. Readings, lectures, class discussions, case studies, and guest speakers are used. Students are required to complete short periodic assignments and develop a program proposal.

P8605 Public health aspects of reproductive health care

3 points.

Overview of concepts, issues, and research methodologies in reproductive health. Issues covered include contraception, abortion, pregnancy complications and outcomes, infectious diseases, social factors, and cancer. Each issue is examined from the points of view of both developed and developing countries, with special attention to resources and technology.

P8614 Management of health care organizations

3 points.

Focuses on the major management issues in health delivery organizations and develops skills in the key functional areas of strategic planning, management control systems, marketing, cost accounting, and operations management. Attention is given to the delivery of population and family health services. Explores the strategic choices offered by the changing structure of health delivery and the managerial policies needed to execute these choices. Classes rely on the case method of instruction.

P8616 Public health aspects of adolescent health

3 points.

Provides an overview of the current health status of adolescents, both nationally and internationally, with an emphasis on: crime and victimization, pregnancy, sexually transmitted disease, HIV/AIDS, school failure, substance abuse, depression, and suicide. Develops students' understanding of adolescent risk-taking behaviors. Explores adolescent physical, cognitive, moral, and emotional development in a historical and social context. Provides illustrations of the development, implementation, and evaluation of school-, community-, and hospital-based intervention programs.

Course Descriptions

***Note:** Many courses require permission of the instructor/Division as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student*

P8619 Research design and data collection: service-based research I

3 points.

Introduces students to the fundamental concepts and components of research design, and familiarizes them with two modes of data collection commonly utilized in service-based research: the focus group and the quantitative survey. Students learn about study design by focusing on the development of research questions and hypotheses, issues of measurement, and types of study designs for an actual research project to be conducted through the DPFH methods sequence during the academic year. Students also learn the purposes, strengths, and limitations of focus groups and surveys, and become familiar with the prefield and data collection activities inherent in each, including respondent recruitment, instrument/form development, interviewer selection and training, and field management. These skills are put to use as students design an instrument, related forms and materials, and a data collection strategy for the year's service-based research project.

P8622 Community nutrition programs

2 points.

Seminar on community nutrition problems and the programs that attempt to ameliorate them, including an analysis of nutrition surveys and other factors affecting food selection in various segments of a community. Programs discussed include those sponsored by both federal and private agencies. Students learn what community nutrition problems prevail, their determinants, and how program design impacts on ameliorating such problems.

P8623 Quantitative data analysis: service-based research II

3 points.

Prerequisite: *Public Health P8619*. Students use SPSS-PC to analyze and interpret the data from the service-based research study that has been the focus of their previous research course. They learn to enter, edit, and clean the data, as well as to generate new, recorded, and scaled variables. They plan and implement analysis strategies based on standard statistical procedures, and interpret and write up the results of their analyses.

P8628 Public health aspects of child health

3 points.

Provides an overview of global child health issues. Included are discussions of diseases (both acute and chronic) to which children are susceptible, their contribution to child mortality, and the strategies available to parents, health care providers, and communities seeking to reduce childhood diseases. The course is designed to help public health professionals identify common trends and patterns affecting child health worldwide, but some topics highlight problems of particular concern in the United States or the developing world.

P8637 Qualitative data analysis: service-based research II

3 points.

While the collection of qualitative data is widespread and growing in service-based research, the credibility and quality of data analysis suffer from an absence of system and rigor in recording, organizing, categorizing, and interpreting qualitative findings. Focusing in particular on observation and interview data, this course introduces a variety of approaches to qualitative analysis and encourages their application through hands-on group work and homework assignments. Although the emphasis is on doing analysis, initial lectures address matters such as research design and methods (observation, in-depth interview, and focus group), and researcher identity and rapport. Topics covered include

recording and organizing field notes, participatory appraisal and analysis, reading data, thematic analysis and coding, data matrices and other visual displays, techniques to generate meaning, validity checks, and effective strategies for writing up/communicating qualitative findings. In the computer lab, students gain experience coding, retrieving, and analyzing focus group data produced during their first research course (*P8619*) using a qualitative data analysis package.

P8640 Program evaluation in reproductive, adolescent, and child health

3 points.

Prerequisite: Prior or concurrent enrollment in *Biostatistics P6103* or *P6104*, or permission of instructor. Using examples from the Center's diverse service delivery programs, students begin to examine methods utilized in rigorous program evaluation. Provides the necessary terminology and tools to design and evaluate public health programs. The focus is on the systematic organization of the complex properties of a program, so that appropriate conclusions can be drawn. Students learn to define the causal hypothesis; identify threats to construct as well as internal and external validity; assess appropriateness of the analytic plan; understand and interpret the results of quantitative analyses; identify threats to statistical conclusion validity; and accurately assess the public health impact of the program.

P8643 Maternal and child health in international primary health care

3 points.

An opportunity for students to learn how maternal and child health (MCH) services provide the basis for primary care in developing countries. The priority health problems of mothers and children are identified; primary health care (including the UNICEF/G.O.B.I./F.F.) interventions and barriers are analyzed and discussed. Students make group multimedia presentations based on a rich reading list and evaluate each other's performance. The instructors mentor these presentations, react to them, and present a focused summary of the main issues involved. The entire class participates at each session. In the context of an integrated primary care strategy for addressing international MCH problems, students learn the basics of organizing a presentation, team work, and training and evaluation according to the principles of Paulo Freire.

P8673 Reproductive health for refugees and other war-affected populations

2 points.

Students assess the policy and program factors that have influenced the provision or non-provision of reproduction health services to war-affected populations. Students ascertain and articulate the need for reproductive health programs among these groups, understand the parameters within which effective interventions have been and may be implemented, and become familiar with the organizations active in reproductive health services to forced migrants. Teaching methods include intensive case studies of ongoing reproductive health programs in forced migrant camp and non-camp settings in Africa, Asia, and Eastern Europe, as well as lecture, discussion, student-led classes, and videos. Requirements include an in-class quiz, group presentation and class discussion, a case study essay, and a final paper.

P8678 Health and human rights

2 points. Quarter course.

Examines the origins of health and human rights concerns and outlines a conceptual basis for human rights concerns among health professionals. Provides an overview of the epidemiology of

human rights violations in the world and an analysis of the psychology of abuse. Considers the role of health professionals in documenting the health consequences of human rights violations, treating survivors of abuse, addressing specific human rights concerns of women and children, identifying the impact of different health policies on human rights, and participating in human rights education and advocacy. Also, the contemporary human rights issues of universality and accountability are addressed.

P8679 Investigative methods in humanitarian emergencies

2 points. Quarter course.

A more in-depth treatment of certain issues raised in the introductory course on forced migration and health (P8687). Quantitative methods for establishing priorities for health-related interventions and for evaluating their impact in refugees and displaced populations are presented and discussed. A series of case studies, progressing in difficulty, forms the nucleus of the course. Staff from the Centers for Disease Control and Prevention assist in teaching.

P8683 Psychosocial impact of forced migration

2 points. Quarter course.

Designed to provide an overview of the psychosocial dimensions of forced migration and highlight needs, opportunities, and constraints to intervention. Considers the main psychological, socioeconomic, demographic parameters of aggression and forced migration, and the collective impact these can have on psychosocial health. Deals with issues of measurement, rapid assessment,

and current limitations in the field. Reviews the different agencies involved in humanitarian action and their work on psychosocial issues. A number of guest speakers present case studies and reports.

P8687 Health consequences of forced migration

3 points.

Focuses on the public health consequences of complex humanitarian emergencies. Does displacement, either within countries or across international borders, have an impact on rates of morbidity and mortality? If so, how are these best measured in an emergency setting? What are the major causes of disease and death in different settings? What are the principal health interventions and how can these be implemented to keep suffering to a minimum? What is the best public health approach to adopt during the emergency phase, during the stabilization period, and in the longer term? Also examines the role of different international and bilateral foreign assistance agencies in preventing and responding to complex humanitarian emergencies. Students prepare descriptions and critiques of these agencies for discussion.

P6690, P8690, P9690 Tutorials in population and family health

1 to 6 points.

Tailored to the particular interests and needs of individual students, these tutorials may take many forms—seminar, literature reviews, research projects, field trips, and other special studies or learning experiences—drawing upon the expertise of faculty members in these areas.



Bruce Armstrong, D.S.W. (second from right), and Alwyn Coball, M.D. (right), point to the growing numbers of young men coming to the Young Men's Clinic, operated by Population and Family Health, as evidence of the need for the unique service program. The Clinic serves the sexual and reproductive health needs of young men ages 13–24 in a "male friendly" environment.

SOCIOMEDICAL SCIENCES

Degrees offered:

M.P.H., Dr.P.H., Ph.D.

DIVISION OF SOCIOMEDICAL SCIENCES

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(in the Center for the Study of Society and Medicine) B.S.,
Simmons College, 1960; M.S.W., 1963; Ph.D., Columbia, 1989

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Associate Professors

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1997

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Dr.P.H., 1997

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1997

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1994

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M.P.H., Columbia, 1988; Ph.D., 1995

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1990

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B.S., Cornell, 1973; M.S., Michigan, 1976; Ph.D., Pennsylvania,
1982

M. Lyndon Haviland
B.S., Georgetown, 1985; M.P.H., Columbia, 1993; Dr.P.H., 1999

Faith Samples
B.S., Howard, 1986; M.S., Cornell, 1992; Ph.D., 1995

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1979

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B.S., Boston College, 1972; M.S., Columbia, 1977; Ed.D., 1993

Elie S. Valencia
(in Psychiatry) B.A., Columbia, 1980; M.A., State University of
New York (Binghamton), 1982; J.D., Rutgers, 1989

Associate Research Scientists

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B.A., Miami, 1967; Ph.D., Columbia, 1980

Laura Lee Dean
B.A., City College of New York, 1974; M.A., Columbia, 1978;
Ed.M., 1980

Mary Duncan
B.A., Tufts, 1981; Ph.D., Columbia, 1994

Stanley Fisher

B.S., City College of New York, 1949; M.S.W., Columbia, 1955;
Ph.D., City University of New York, 1977

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Adjunct Associate Research Scientist**Dorothy Jones-Jessop**

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Ph.D., 1979

Senior Research Associate**Paul W. Haberman**

B.S., Pennsylvania, 1948; M.B.A., New York University, 1961

Research Associate**Athilia Siegmann**

B.S., Queens (New York), 1944; M.A., Columbia, 1947

Special Lecturer

Jack Elinson, Ph.D. (Professor Emeritus)

Special Research Scientist

Ann F. Brunswick, Ph.D.

Lecturers

Raymond Fink, Ph.D.

Daniel Herman, D.S.W.

Kim Hopper, Ph.D.

Debbie Indyk, Ph.D.

Navneet Kathuria, M.D.

Mary Kenny, Ph.D.

Corinne Kirchner, Ph.D.

Joanne E. Mantell, Ph.D.

Joseph Marbach, D.D.S.

Margaret Rosario, Ph.D.

Lucille Rosenbluth, M.P.A.

Daniel R. Vasegird, Ph.D.

David Willis, M.P.H.

patient education; self-management of chronic illness; mental health and social issues specific to the homeless and homeless mentally ill; health of Latinos; HIV/AIDS and housing; evaluation of health service delivery programs.

Objectives

The Division of Sociomedical Sciences brings together a multi-disciplinary faculty of social scientists and health professionals interested in studying the influence of social and cultural factors on health and health care delivery. An understanding of these factors is essential in the work of all public health professionals (health administrators, health educators, policy analysts).

Students in the Division generally have academic backgrounds in the social sciences, or professional experience in clinical health areas (nursing, social work, medicine, dentistry). Some students may be involved in research and desire further graduate and postdoctoral training; others, in their roles as practitioners, may wish to learn how to measure and evaluate the sociocultural factors that influence their work. A growing number are pursuing the M.P.H. degree in Health Promotion and Disease Prevention and go on to careers in health education.

Areas of research currently being addressed by faculty and students in the Division include preventive health behavior, the role of social supports, stress and coping, mental health effects of AIDS and tuberculosis, ethical and social policy issues in AIDS, health professionals and AIDS, gender and health, drug use in adolescents and adults, tobacco policy, health consequences of lifestyle, adolescent violence, and effects of racism on health. Students are encouraged to participate in ongoing research projects.

Master of Public Health (M.P.H.)

The Sociomedical Sciences Division is organized around the study of social and behavioral factors that affect health and health care. The Division offers four tracks within the master's program: the Research track, the Health Promotion and Disease Prevention track, the History of Public Health and Medicine track, and the Aging and Public Health track.

The **Research** track focuses on public health research with a strong social science orientation. Training is provided in social science theory and methods, and the application of social science research to public health issues and evaluation. The Research track prepares students to participate as members of research teams, enabling them to contribute to various phases of research, such as data collection and data analysis. This track is recommended for students who plan to pursue doctoral studies or postdoctoral studies or for postdoctoral students who plan to pursue research careers.

The **Health Promotion and Disease Prevention** track is designed for students who are interested in concentrated study in health promotion and disease prevention issues and who are more interested in an applied rather than a research approach to public health issues. This track prepares students to plan, implement, and evaluate health promotion and disease prevention programs in government health agencies, community-based organizations, and the private sector. Students should have some work experience in public health or a related field before entering this program. All

EXAMPLES OF FACULTY AREAS OF EXPERTISE

The role of family, friends, and self-help groups as informal caregivers, particularly among the elderly and AIDS patients; the changing family structure and its impact on children; job and family conditions that contribute to women's mental health; qualitative research; attitudes of physicians and other health care providers about HIV/AIDS and health care reform; AIDS; tuberculosis; ethics and public health; pediatric and adolescent AIDS; testing and counseling for AIDS; delivery of health care services for HIV-infected persons; gay men and AIDS; preventive medicine; physician education in prevention; community intervention programs for health promotion; sexuality and public policy; cross-cultural health; nonintrusive alternatives to biomedical therapy;

M.P.H. students must complete a practicum requirement. In addition to the practicum, students in the Research track must complete a master's essay which should take the form of a publishable research paper; Health Promotion and Disease Prevention track students must complete a master's essay or integrative project which may be done in conjunction with the practicum experience.

The **Evening Program in Health Promotion and Disease Prevention** is for working professionals, and others who find evening study preferable, who want to develop advanced skills in health promotion and disease prevention. Professionals studying in this program will learn to plan, implement, and evaluate health promotion and disease prevention programs in government health agencies, community-based organizations, and the private sector. The Evening Program can be completed in five semesters by taking three courses per semester. Students attend classes two evenings per week in an early session and a late session. Courses, requirements, and faculty are the same as for the Health Promotion and Disease Prevention track, including the master's essay/integrative project. Practicum credit may be given for relevant work experience.

The **Distance Education Program in Health Promotion and Disease Prevention** is designed for city, state, and federal Department of Health (DOH) employees. Distance education courses are taught on the Columbia University Health Sciences campus and transmitted live via two-way audio/visual teleconferencing technology to off-site classrooms. Students in the Distance Education Program take the same curriculum and complete the same requirements over the same period of time as described in the Evening Program above. Courses are taught by the same faculty and are offered in the evenings from 5:30 p.m. to 7:30 p.m. and from 7:45 p.m. to 9:45 p.m. Additional technologies, such as "chat rooms," are utilized to increase communication among students and instructors. Selected courses are augmented by using a variety of Web-based materials. The purpose of the program is to make the M.P.H. degree accessible to the public health workforce.

The M.P.H. offered in the **Program in the History of Public Health and Medicine: Ethics, Policy, and Society** track is the only one of its kind. It emphasizes training health professionals in historical methods and contemporary policy analysis. The program also provides a unique opportunity to develop an understanding of the context in which ethical considerations have emerged in public health and medicine. Students interested in the impact of history on public policy, public health measures, and attitudes toward health and illness will find an opportunity to use history and ethics as a means of informing and shaping contemporary policy debates. Public health practitioners, policy analysts, epidemiologists, clinicians and medical center staff, and clergy, along with recent college graduates with training or interest in history, ethics, sociology, political science, philosophy, or other humanities and social sciences, are encouraged to apply. The program provides opportunities to study with public health experts, ethicists, and historians from the Mailman School of Public Health, the History Department of Columbia University, and other experts in the field from affiliated centers. In addition to the required School and Sociomedical Sciences Division courses, and a sequence of public health history, policy, and ethics courses, students will take electives to develop proficiency in different areas of social,

political, and intellectual history, public health policy and law, or ethics.

A new M.P.H. track in **Aging and Public Health** will begin in fall 1999. This program will provide students with a comprehensive understanding of the special public health challenges of an aging population. It offers a public health perspective on aging that encompasses both applied and policy dimensions. In addition to the required Public Health core curriculum, students will take courses designed to address aging-related quality of life issues, successful aging, life course transitions, elder-based health promotion and disease prevention efforts, chronic disease and disability, technology and health, bioethical issues related to health care and the elderly, and public health issues in special aging populations. A master's essay and practicum are also required. This program is designed for students who have an interest in aging-related concerns and issues and are seeking a public health perspective. The program is also relevant to a broad array of public health professionals including those who are providing clinical services, managers and administrators of aging-related institutions, community-based social service and health care agencies, geriatric clinicians, and health services researchers.

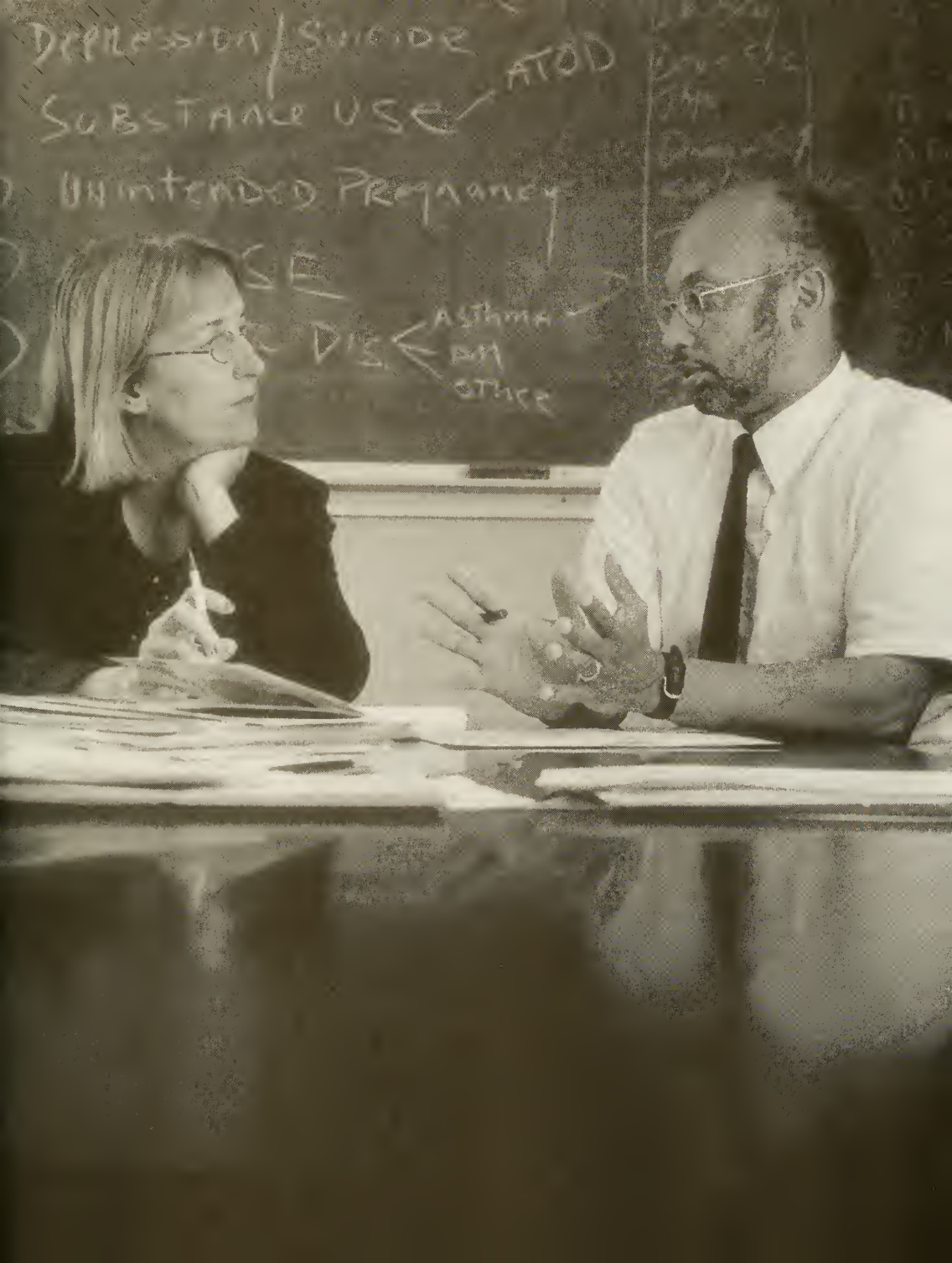
Doctor of Public Health (Dr.P.H.)

A program leading to the Doctor of Public Health degree may be pursued in the Division's current areas of research activity and specialization, or in any other area involving study of socio-behavioral aspects of health. Training in research methods drawn from public health and the social sciences is emphasized. Following completion of coursework and comprehensive examinations, students complete a dissertation on a problem or issue in the health field of interest to them, using social science theories, concepts, and methods. Graduates of the program will be prepared to enter research and teaching positions in health professional schools, or to engage in health research in a variety of settings including government, hospitals and health care agencies, and health planning and consulting organizations.

Applicants who wish consideration for Divisional tuition support must submit their applications by February 15.

Doctor of Philosophy (Ph.D.)

The Sociomedical Sciences Ph.D. program is interdisciplinary, with study divided between the Mailman School of Public Health and one social science department in the Graduate School of Arts and Sciences (Anthropology, Economics, History, Philosophy, Political Science, Sociology, or Psychology). The aim of the program is to train researchers and teachers to apply social science theory and methods to the study of social factors related to health status and health care needs, the social systems, and the relation between these systems and the populations they are designed to serve. Students who enter the program with a bachelor's degree complete a minimum of 60 points; those with a health or social science master's degree may be eligible for advanced standing with a corresponding reduction in course requirements. Following coursework there may be a language or statistics requirement depending upon the social science in which the student elects to concentrate. All students complete qualifying examinations in their social science area and in methods, health behavior, and health care systems. The dissertation topic, a public health problem or issue of



interest to the student, is addressed using social science theories, concepts, and methods. Graduates of the program have typically been employed in academic positions either in social science departments or health professional schools, or have taken positions as analysts or evaluation researchers in health planning agencies or consulting organizations. Further information on admissions and program requirements can be obtained from the Division of Sociomedical Sciences. Applicants may call (212) 854-4737 and may also download a Ph.D. application over the WorldWide Web (<http://www.columbia.edu/cu/gsas/download.html>).

Applicants who wish consideration for Divisional tuition support must submit their applications by February 15.

Course Descriptions

***Note:** Many courses require permission of the instructor/Division as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Services identifies courses that require permission prior to registration.*

P6700 Introduction to sociomedical sciences

3 points.

This course, or an alternate selected from the list approved by the Division, satisfies the Sociomedical Sciences core requirement for the M.P.H. degree for students in other Divisions. A critical review of research illustrating the application of social science concepts and methods to health and health care. Issues include the effect of social and psychological factors (such as cultural and ethnic influences, social networks, social class, personality, and stress) on health and health behavior.

P6710 Health communications: social marketing and the media

1 point.

Provides students with a broad overview of the field of health communications and social marketing. Speakers, including faculty and invited marketing/communications experts, make presentations on designing social marketing programs and understanding media relations, advertising, and marketing. Case studies of applications of social marketing principles are emphasized. Objectives are to make students understand health marketing and communications by (1) increasing their understanding of the theoretical underpinnings of the field; (2) increasing their understanding of the process of communication, the role of the media and ways of working with media, i.e., analyzing the situation and setting program objectives, segmenting the audience, determining the message, determining the channels of communication, implementing the plan, and measuring the success; (3) increasing their awareness and appreciation for the scope of the application and practice of social marketing and communication in the health field; (4) providing contact with leaders in applied communication and research; and (5) stimulating discussion of ethics of communications and persuasion and applied methods.

P6713 Introduction to clinical medicine and public health

2 points.

Designed to provide the master's degree student with a general overview of medical diseases and the various organ systems of the

human body. Students achieve an understanding of pathophysiology, diagnostic criteria, and treatment approaches to diseases. Emphasis on the relationship of disease and its impact on public health. Covers entities including, but not limited to, infectious diseases (tuberculosis, AIDS), cardiovascular disease, pediatrics, psychiatric illness, alcohol and substance abuse. Students learn basic medical terminology as well as how various disciplines (i.e., nurse, M.D., social worker) work as a team within the hospital organization. Invited speakers as well as field trips to hospital sites. Grade based on final exam and term paper related to the field experience.

P6723 Women and AIDS

3 points.

Broad overview of the impact of the HIV/AIDS epidemic on women's lives. The magnitude of the infection, prevalence among women, and diversity of the women affected in terms of class, race, ethnicity, age, and personal status are presented. Regional and international differences in distributions, risk factors, and behavioral factors affecting the vulnerability of women to the infection and its consequences, as well as the special clinical and psychosocial manifestation of the disease in women, are discussed. Lecture format with critical discussion encouraged.

P6725 Homelessness: public health and public policy

3 points.

The changing causes and manifestations of homelessness in 20th-century United States, with particular emphasis on the post-war period. The focus is a double one: analysis of the available data on homelessness in each period is coupled with analysis of contemporary accounts of the problem and proposals to remedy it. The enduring distinction between the deserving and undeserving poor is examined and the changes in the expression of that tradition charted. Historical data, unpublished accounts, archival material, the classics of "skid row" literature, and contemporary reports and research papers furnish the raw material for discussion. The orienting question for each period is: What kind of social problem is homelessness perceived to be (if at all) and what is the evidence offered in support of that view? Students are offered the choice of archival research or policy analysis for their projects.

P6726 Social aspects of physical disability and rehabilitation

3 points.

Social aspects of physical disability, approached at three levels: (1) individuals with disabling conditions; (2) occupations and organizations involved in rehabilitation; and (3) social movements and social policy related to the physically handicapped. Emphasis is on the latter two. Seminars, with two or three invited speakers. A paper based on a research project (developed in consultation with the instructor); reports to the class on work-in-progress at mid-term.

P6727 Preventive health behavior

3 points.

Coordinated with *Public Health P6729*, it focuses on concepts, issues, and status of research in health promotion and disease prevention with emphasis on modifying group and individual preventive behavior. Effects of lifestyles—smoking, drinking, diet and weight control, exercise—and preventive health practices—use of seat belts, oral health practices, compliance with medication. Topics include Year 2010 Health Objectives for the Nation, surveys of preventive behavior, and the design, implementation, and evaluation of health promotion programs in primary care, at the worksite, and in the community. Seminar format, with two or three invited speakers. Assigned readings, one or two brief written assignments, term paper, and class presentation are required.

P6729 Preventive medicine and public health*3 points.*

An overview of the scientific basis of preventive medicine with an emphasis on practical applications in public health. Topics include primary and secondary prevention of cardiovascular disease and cancer, the role of nutrition in health promotion and disease prevention, the report of the U.S. Preventive Services Task Force, and less traditional concerns of preventive medicine such as injuries, violence, suicide, and substance abuse. Future trends in prevention and public health implications are considered. Lectures, invited speakers, discussion. Assigned readings, written assignments, term paper, and class presentation.

P6732 Health promotion and disease prevention seminar series*1 point.*

Primarily for students in the M.P.H. Health Promotion and Disease Prevention Track of Sociomedical Sciences, although others are welcome. Presentations focus on practices used in the field of health promotion and ongoing research in the field. Speakers include faculty, invited guests, and post- and predoctoral students. Seminars are cosponsored by the Harlem Center for Health Promotion and Disease Prevention and the N.Y.C. Department of Health/School of Public Health Preventive Medicine Residency Program.

P6735 Health promotion development and practice*3 points.*

Focuses on design, implementation, and assessment of effective health promotion/behavior change programs. As a result, students should be conversant with several behavior change theories, methods of needs assessment, behavior change strategies effective in organizational or community settings, and steps in program development. Practitioners currently developing and implementing health promotion programs discuss their work in class to demonstrate how this process works in the field. Students select a health problem and develop a plan for a practical health promotion/behavior change intervention to address it.

P6738 Health promotion at the worksite*3 points.*

Interest in worksite health promotion and disease prevention has grown exponentially in the past two decades, driven both by the desire to improve employees' health and the potential of health promotion programs to slow spiraling health care costs incurred by employers and to improve employees' productivity and morale. *Healthy People 2010*, the nation's prevention agenda, includes several objectives that specifically target worksites, challenging employers to create and expand healthy work environments and facilitate health promotion activities. This course reviews concepts, issues, and methods of promoting healthy lifestyle behaviors in business and industry. Guest speakers, discussions, and assignments illustrate the processes involved in planning, implementing, and evaluating health promotion programs at the worksite.

P6739 Public health and aging*3 points.*

An overview of the aged population, both in the United States and internationally, and its increasing relevance for public health planning and policy. Five major topics are covered: (1) "age" in its biologic, demographic, and epidemiologic dimensions; (2) aspects of the health of the aged, evident in assessment of health status, function, cognition, and health service use; (3) the formal, "semi-formal," and informal components of long-term care for elders with chronic disease; (4) minority aging; and (5) policy issues related to an aging population. Lectures and guest presentations.

Students are required to prepare a class presentation on a set of readings, including a written critique of a paper, complete a midterm exam, and write a final paper on an agreed upon topic.

P6741 Overview of long-term health care services in aging*3 points.*

Provides an overview of community-based and institutional services within the systems of long-term care (LTC), informal supports, and the role nonprofit consumer organizations can play in articulating deficits in the systems and advocating for change. Emphasis placed on Alzheimer's disease as a prototypical chronic illness in the aging population. Class format includes lectures and discussions by experts in the fields of medicine, research, bioethics, advocacy, law, social work, nursing, and nonprofit organizations. Site visits arranged to community-based and institutional settings.

P6742 Quality of life in health and aging*3 points.*

Provides an in-depth study of the relatively uncharted scientific field of quality of life in health and aging. Emphasizes a comprehensive and integrated view of the components of quality of life that are found in the body, mind, and values; the living and nonliving environment; and in the life experiences of space and time. Partially supported with funds from the Morris W. Stroud Program on Scientific Approaches to Quality of Life in Health and Aging at the Columbia University Center for Geriatrics and Gerontology.

P6743 Caregiving in chronic illness: psychosocial perspectives*3 points.*

Review of historical, developmental, and economic changes in caretaking. Provision of analytic and empirical insights on the contemporary role of formal and informal support providers in chronic diseases focusing specifically on AIDS, Alzheimer's, and cancer. Examines the psychosocial impact of caregiving on the caregiver as well as the care recipient. Specific emphasis is given to issues regarding the economic costs of informal care and issues of grief and bereavement.

P6758 Introduction to theory and research on interpersonal violence*3 points.*

Designed for M.P.H. students as an introduction to the definitions, patterns, reactions, and explanations of violence in the United States. Throughout modern history, concerns about violence have often mirrored the emergence and decline of social problems. In the United States, explanations of violence have implicated culture, political economy, social inequality, social class, race, gender, genes, mental illness, drugs, and technology. Course surveys the literatures on etiology, the epidemiology of violence, research methods, and comparative studies, and covers intervention and prevention strategies. Focus on contemporary issues regarding theory and analysis. Assignments include readings, term papers, and class presentations. A final paper analyzing a specific violence problem, proposing a research project, or comparing social science and public health perspectives on violence is required.

P6777 New York City Department of Health: managing urban health*3 points.*

The largest health department in the United States, the New York City Department of Health (DOH), and the Mailman School of Public Health have collaborated in research and service activities since the 1920s. Senior Department of Health officials give students in this course a firsthand overview of the Department's



"This is what you look for...." Assistant Professor Raymond Arons, Dr.P.H., helps a student access and interpret data while he instructs a class on use of national health care data sets.

internal structure and operations, and provide special insight into dealing with the pressures and problems of managing the health of a large urban population through the mechanisms of service delivery, regulation, monitoring, enforcement, and advocacy. Addresses how the Department works with the New York State Department of Health and various federal agencies concerned with public health issues.

P6781 The use of large scale national health care data sets

3 points.

An overview of research methodology utilizing major publicly accessible large scale health care and social demographic data sets, including federal, state, and local level resources. Covered are (1) variable identifications and definitions; (2) record layouts; (3) data set size and analysis restrictions; (4) variable strengths and weaknesses; (5) research protocol submissions required by agencies for access to confidential data; and (6) data handling methods. These data permit a wide range of research questions to be addressed. This is demonstrated through the presentation of current and recently completed research activities and projects under development. The ability to analyze data at levels ranging from the individual patient to the national population could prove to be a valuable skill as students pursue their public health careers and advanced studies.

P6794 Overview of geriatrics and gerontology

3 points.

Jointly sponsored by the School and the Center for Geriatrics and Gerontology. Research and practice in geriatrics and gerontology

are reviewed, including the demography and epidemiology of aging as well as biological, social, medical, psychological, and psychiatric factors that influence the aging process; the problems that develop in aging; and the manner of treating and caring for the aged.

P8702 Child and family policy

3 points.

Year-long seminar on child and family policy designed for students who already have some background in U.S. social policy and, preferably, either child development or child policy as well. Team taught by faculty members from the schools of Social Work and Public Health and Teachers College, bringing together health, education, and social work perspectives and involving special guest lecturers for selected sessions. First semester stresses the varying approaches taken to child policy by different social and behavioral sciences (history, sociology, demography, economics, political science, and developmental psychology), family law, as well as a cross-national perspective. Ends with three sessions on social problem situations involving children and their families that is addressed from the perspective of different disciplines. Second semester focuses on specific child and family policy domains, the current major research developments in each domain, and the relevant policy debate—again from a multidisciplinary perspective.

P8703 Assessment of health and function in aging

3 points.

Designed to provide a systematic review of strategies for the assessment and eventual diagnosis of mental, physical, and social

problems of older people. Instruments for assessment are reviewed and examined with special attention given to the underlying principles of these instruments in relation to various disorders. Videotapes of interviews with older people are used for developing participants' skills in the use of assessment tools.

P8704 Introduction to medical sociology

3 points.

Required for all Sociomedical Sciences students; open to others with the instructor's permission. Introduction to selected issues in medical sociology, the application of sociological concepts and methods to the study of health and health care. Topics include social factors in conceptions of health and illness; social factors in relation to health, health-related behavior, and the use of health care services; and social factors in the organization of health care. Research paper is required.

P8705 Seminar in evaluation of health programs

3 points.

Prerequisite: *Public Health P6104* or the equivalent. Review of the basic principles and methods of evaluation in public health. Critical analysis of existing evaluation studies. Assigned readings, short homework assignments, and exams.

P8706 Gender and mental health

3 points.

Relationship between gender and dimensions of mental health from a sociological perspective. Concepts of gender, sex, gender role, and mental health/illness are reviewed and examined critically. Psychoanalytic, biological, and sociological explanations for the association between gender and forms of psychopathology are evaluated, with particular attention given to the influence of family and work. Required readings, class presentations, and a research paper.

P8707 Sexuality, health issues, and public policy I

3 points.

The field of public health is frequently called on to address health and policy issues that bear, directly or indirectly, on sexuality and sexual behavior as in the case, for example, of birth control and sexually transmitted disease, and most recently, AIDS. Developing a public health discourse about such issues has not been simple, because the growth of public health as a field in the past hundred years paralleled major changes in the organization of sexuality, family, and gender in the United States and Europe. Analysis of historical and contemporary examples of health issues with sexual dimensions in order to identify the significant elements in the formulation of health policy in this arena. Particular attention is given to the complex interplay between empirical data and scientific knowledge, professional and governmental definitions of health problems, and the larger cultural frameworks used to understand sexuality. Quizzes and a term paper.

P8708 Current readings in sexuality and gender

1 point.

Participants read, discuss, and critically analyze a selection of new articles and books focusing on sexuality, gender, and health. Readings are drawn from social science and public health, reflecting current issues and controversies in method and theory. Requirements include one presentation and one written analysis. Meets every other week.

P8709 Seminar in sexuality, gender, health, and human rights

3 points.

Prerequisites: previous coursework or work experience in at least two of the following areas—sexuality, gender, health, and human-

rights—and instructor's permission. Examines recent scholarship regarding sexuality, and explores ways of integrating its empirical findings and theoretical challenges with work on gender, health, and human rights. Building on developments evident since the United Nations conferences in Cairo and Beijing, as well as the HIV/AIDS pandemic, the seminar critically analyzes new work on sexuality in light of current practical issues raised by policy intervention, public health programs, and grass-roots organizing. Drawing on the most recent scholarship and activism in sexuality, gender, health, and human rights, students explore how these basic human issues can be integrated more effectively. The seminar analyzes contemporary case studies in order to identify significant achievements, limitations, and challenges posed by current approaches and programs, in domestic and international settings. The seminar aims to promote dialogue and exchange between academic, activist, and advocacy work. Weekly critical response essays, seminar presentations, and a term paper are required.

P8710 Sexuality, health issues, and public policy II

3 points.

Prerequisites: *Public Health P8707 Sexuality, health issues, and public policy I*, or equivalent preparation, and instructor's permission. A critical examination of the social, historical, cultural, and scientific factors that influence contemporary policy issues and controversies regarding sexual/health issues. Building on the historical frameworks provided in *P8707* (formerly *P6721*), this seminar analyzes contemporary case studies in order to identify the significant elements in the formulation of policy. Particular emphasis is given to the complex interplay between empirical data and scientific knowledge; professional and governmental definitions of health problems; and the larger cultural frameworks employed to understand sexuality. Quizzes, presentations, and a term paper.

P8711 Women and health

3 points.

Health issues pertaining to historical and contemporary experiences of women. A review of the conceptualization and measurement of health and illness in social science research and a historical overview of the significance of gender in receiving and providing health care services in the United States. The epidemiology and social and cultural correlates of women's health status, as well as the influence of gender on health behavior, are addressed. Women as health care providers, the medicalization and social transformation from natural biological processes to diseases, and the feminist social and health movement are included. Instructor lectures, guest lectures, and student-led presentations/discussions of assigned readings.

P8716 Historiography: history of medicine and public health

3 points.

Introduces students to the classic texts and concepts in the field of history of public health and medicine and explores how these texts have structured specific areas of research. Particular attention to (1) changing historical interpretations; (2) historical methods, quantitative and qualitative; and (3) the use of history in the formation and analysis of public policy. Team taught by faculty members in the program. Each section is led by two faculty members whose scholarship and current research relate to the historical concepts and methodologies that are the focus of the session.

P8718 Privacy, the state, and epidemic disease: policy conflicts in AIDS and tuberculosis
3 points.

A critical examination of the ethical and political controversies that have emerged in efforts to control tuberculosis and AIDS. The paradigm of disease prevention that emerged in response to tuberculosis—case finding, case reporting, treatment, and quarantine—are examined in the context of AIDS, where concerns about the right to privacy have been given such salience. Topics considered include screening, reporting by name, criminalization of transmission, discrimination, and access to care. Midterm exam and term paper required.

P8719 Master's essay in sociomedical sciences
3 points.

Required for M.P.H. students in the Sociomedical Sciences program. The essay should involve research based either on data collected by the student or on secondary analysis of available data. It may develop from a term paper for a course, from a research study, or independent study. The Project, an option in place of the essay for students in the Health Promotion/Disease Prevention track, might take the form of a health promotion curriculum, a grant proposal, or strategies for a social marketing campaign. The essay/project requires review by two full-time faculty members from the Division.

P8720 The changing roles of health professionals
3 points.

The social origins, ideologies, and socialization of health professionals; the division of labor; the response of professionals and professional associations to changes in the organization of health care; relations between the professions and society, with particular emphasis on the political role of the health professions in promoting and resisting change. Student reports and a paper.

P8724 Drugs and society
3 points.

Seminar in drug abuse as a health and social problem. Historical and cross-cultural perspectives; the concept of addiction; patterns and trends in drug use and abuse—the epidemiology of tobacco, alcohol, heroin, marijuana, and psychotropic drugs; the antecedents and consequences of drug use and abuse—psychosocial perspectives; drug abuse and crime; the social costs of drug abuse; the evaluation of treatment and prevention strategies. Term paper.

P8725 Global AIDS policy
3 points.

A broad overview of the social, political, and economic factors shaping the global HIV/AIDS epidemic, and of the policy responses that the epidemic has generated in different settings. Specific topics include the changing shape (and the changing perception of the shape) of the epidemic in different parts of the world; the factors that structure or influence HIV vulnerability cross-culturally; and the ways in which different sectors, both governmental and nongovernmental, have sought to respond to AIDS in a range of different country settings. Special emphasis is given to the international and intergovernmental response to the epidemic, focusing on the extent to which HIV/AIDS can be understood as a kind of test case in international health, illuminating both the possibilities and the limitations of the international system in responding to perceived health emergencies.

P8726 Tutorial: advanced issues in AIDS research
1 to 3 points.

Current issues and problems in AIDS research are examined from the perspectives of both the social sciences and the biological

sciences. Students are expected to examine critically and discuss research journal articles in their particular field of study. More than 1 point may be earned by satisfactorily completing a written project (for example, a research paper or grant proposal) on AIDS by the end of the term.

P8727 Tutorial: meta-analysis
2 points.

Enrollment is limited. Introduction to statistical techniques for synthesizing the findings from different experimental studies. Assigned readings and weekly discussions. Students work on a small project applying meta-analysis to synthesize experimental literature on a subject of the student's choice.

P8729 Organizational and community linkages
3 points.

Development of the optimal principles by which organizations and communities link to each other. An examination of some of the key issues by which (1) good health practices are communicated to the public (e.g., mass media, indigenous workers, voluntary associations, etc.), and (2) health services can be optimally delivered to various health communities (e.g., ethnic, minority, middle-class, etc.). One part of the analysis looks at principles of administrative structure (e.g., hospitals, nursing homes, HMOs) to see how they affect the nature of linkages. Another part of the analysis is the conceptualization of the various barriers to effective health communication between organizations and communities. Organizational material draws on health data but includes other areas as well to show the generality of the linkage principles. Midterm and final exams.

P8731 Informal social networks
3 points.

Indications of the unique role that informal networks play in a modern industrial society as contrasted to formal organizations. Outlines the specific roles played by spouses, kin, friends, neighbors, volunteers, and various other "weak tie" groups. Ideal states of each of these groups are explored along with major variations and their impact on social functioning and health. Midterm and final exams.

P8735 Media interventions for public health: social marketing and media advocacy
3 points.

Variable roles of social marketing and media advocacy in the design and implementation of health promotion and disease prevention initiatives. Special emphasis on social marketing approaches utilized to influence individual attitudes and behaviors. Focus on audience targeting, cultural issues in message design, choice of communications interventions, formative research and evaluation, and theoretical foundations. In addition to lectures, sessions feature group discussions and project workshops, outside speakers, and review of case studies. Two 5-page campaign plans and an 8- to 10-page paper are required.

P8738 Seminar on gay and lesbian issues in public health
3 points.

Provides theoretical and methodological tools for conducting public health research, designing public health interventions, or developing health programs for lesbian and gay populations. Addresses theory as well as conceptual and methodological research issues. Topics include the social construction of homosexuality; lesbian/gay world and culture; methodological problems in research on gay and lesbian populations; the social psychology of prejudice, stigma, and stereotyping; homophobia and heterosexism; antigay violence; gay/lesbian identity development; lesbian/

gay families; psychosocial impact of AIDS on the lesbian/gay community; health effect of prejudice and stigmatization; lesbian health and illness; availability and utilization of health services by lesbian and gay populations. Methodological topics include defining a population of lesbians and gay men; sampling problems; the effect of bias in lesbian/gay research on internal validity and generalizability of research results.

P8740 Social and economic factors in clinical decision making

3 points.

A review of different models of clinical decision making: economic, sociological, and psychological. These models are systematically compared with each other and with the medical model in terms of the factors presumed to influence both the amount and content of diagnostic and treatment services (e.g., tests, medical vs. surgical treatment, referrals, revisits) and, more generally, clinical practice styles. Special topics: the influence of different methods of physician reimbursement, explicit standards (e.g., Diagnostic Related Groups), legal and ethical issues, organizational settings, professional norms, peer and patient pressures, and the diffusion and impact of new medical technology. Paper required.

P8745 Social and economic determinants of health

3 points.

Prerequisite: *Public Health P6700 or P8704*. Examination of research on disparities in health and illness related to social and economic inequality in the United States. Lectures and readings review theoretical and empirical research on factors linked to class, income, and education differences that have been hypothesized to explain the generally poorer health and higher rates of mortality among members of lower socioeconomic groups. Includes concepts and measurement of health and social stratification, assessment of evidence for proposed links between socioeconomic position and health through group differences in health beliefs, health behaviors, exposure to social stress, occupational hazards and employment instability, and access and utilization of medical care services. Also reviewed are policy initiatives aimed at narrowing health disparities between different socioeconomic groups. Midterm exam, and a take-home final exam.

P8747 Health promotion, disease prevention, and the state: ethical and political controversies in public health

3 points.

Public health policy is always the product of controversy. Most typically such conflicts are played out in terms of a clash among scientific considerations. But even when not explicit, the controversies entail political tensions and ethical concerns. This course examines the political and ethical dimensions of public health policy focusing on issues of justice and liberty in four domains of public health: the prevention of diseases associated with personal behavior, protection against occupational hazard, epidemic control, and access to health care. Midterm exam, term paper, and two short critiques.

P8749 Immigrant health

3 points.

An introduction to issues associated with immigrant health. A brief historical overview of immigrant health in the United States. The focus is primarily on current immigrant populations in the United States and New York City and the challenges to providing health care. A general approach to issues on immigrant health is utilized. Topics such as immigrant status (i.e., documented, undocumented, refugee, migrant) and health cultural influences in health

outcomes, acculturation/assimilation (stress), access to health care, and multicultural approaches to health promotion are addressed.

P8750 Health problems of African Americans

3 points.

Prerequisites: core courses in Epidemiology, Biostatistics, and Sociomedical Sciences. Health issues pertaining to African Americans as well as other minority groups. An examination of concepts of health and illness and a review of epidemiological studies of the differential rates of health disorders among minorities in comparison with whites. Theoretical issues and research findings on these differential rates are reviewed. Methodological issues pertaining to research findings with regard to the association of lower health status with minority group membership are critically examined. An overview is provided of present and future U.S. perspectives with regard to health issues among minorities. Instructor lectures, guest lectures, and student-led presentations/discussions of assigned readings.

P8755 Introduction to medical anthropology

3 points.

Required for all Sociomedical Sciences students; open to others with the instructor's permission. Overview of medical anthropology, the examination of health, disease, and medicine in the context of human culture. Emphasis on cross-cultural data and comparative method. Topics include ecological influence on health and disease; adaptation; subsistence and social structure; medical systems and theories; curing, patients, and healers; diagnosis and divination; cognition; acculturation and social change. Lecture format with critical discussion encouraged. Exam.

P8757 Current readings in medical anthropology

1 point.

Participants read, discuss, and critically analyze a selection of new articles and books focusing on culture and health. Readings focus on ethnography, theory, method, and policy, reflecting current issues and controversies. Requirements include one presentation and one written analysis. Meets every other week.

P8758 Advanced seminar on theory and research on interpersonal violence

3 points.

For doctoral students only. Interpersonal violence is a recurring political and social problem that has commanded scientific and cultural interest. Societal and scientific concerns about violence tend to mirror the emergence and decline of social problems such as family violence, sexual violence, "street" crimes, gang violence, homicide, and state violence. In the United States, explanations of violence have implicated culture, political economy, social inequality or social class, race, firearms, hormones or genes, mental illness, alcohol and drugs, and technology. Efforts to estimate the costs of violence or predict its occurrence have raised critical questions about how we define, measure, and explain it. Despite nearly fifty years of scientific study, our knowledge of violence is incomplete, as is our ability to prevent or control it. The goal is to train students in the definitions, patterns, and explanations of interpersonal violence, and on contemporary methods of violence research. Literatures on the epidemiology of violence, research methods, comparative studies, and several levels of explanation and theory are surveyed. Readings are drawn from the several disciplines concerned with violence prevention and control. Students become conversant with the contemporary issues in theory and research on violence, and apply their knowledge in developing a scholarly analysis of a topic in violence.

P8760 Medical anthropology: advanced seminar*3 points.*

Prerequisite: *Public Health P8755*. Selected reading and analysis of recent work in medical anthropology, with emphasis on complex society, the relationship between health and illness and the larger cultural context, and the use of qualitative and quantitative methods. Seminar format with discussion and student reports. Term paper developed through student-instructor consultation.

P8767 Introduction to health psychology*3 points.*

Required for Sociomedical Sciences students; open to others with instructor's permission. Introduces conceptual and theoretical issues and research methods in the social psychological study of health. Students are introduced to the field of health psychology and review convergences and distinctions from public health. Focuses on the tension between individual (micro) and social environmental (macro) perspectives. Specific areas of study include: mind/body and health, conceptual issues and evidence for pathophysiological paths between the nervous system and the endocrine and immune system; stress in disease etiology; personality in disease etiology; ameliorating factors in stress, such as coping, resilient personality, and social support; the psychology of illness processes, such as doctor-patient interaction, and coping with disease; theoretical models of health promotion and disease prevention; and incorporating a biopsychosocial model of health and illness. Case studies of these issues throughout the course focus on environmental health issues, women's health, and HIV/AIDS.

P8773 A social history of American public health*3 points.*

Provides students with a historical understanding of the role public health practice has played in American history during the 19th and 20th centuries. First, focus is on the social and biological environment and the creation of conditions for 19th-century epidemics of cholera, typhoid, yellow fever, and other epidemic diseases. Second, the course traces the changing urban and industrial infrastructure and their relationship to late 19th- and 20th-century concerns about tuberculosis, industrial illness, and infection. Third, public health practice and public health campaigns are traced, looking at the ways that social attitudes toward the industrial worker, the immigrant, and the urban environment shaped the field. The class then looks at the boundaries between public health and medical practice and raises questions about their shifting definitions. As lecture topics indicate, the course emphasizes that public health is intimately related to broader social, political, as well as scientific changes overtaking the country and incorporates a very broad range of subjects from changes in urban living and culture through the transformation of the industrial workplace. Active participation in discussions and a research paper are required.

P8775 Qualitative research methods I*3 points.*

Survey of methods employed in qualitative research. For each of the methods of interest, examines the technical problems of data collection, the kinds of data that are collected, and the strategies for data analysis. Major emphasis on understanding the rationale for selecting a particular method of qualitative research to answer a specific research question. Methods discussed include: direct



Sociomedical Sciences Professor Ronald Bayer, Ph.D., is a recipient of a coveted five-year National Institute of Mental Health Scientist Award. He is a principal investigator of the ethics, legal, and policy core of the HIV Center for Clinical and Behavioral Studies. Here he meets with students interested in ethical issues related to AIDS and tuberculosis.

observation in field settings, focus groups, individual lifeworld interviews, family and group interviews, historical analysis, and literary analysis.

P8777 Survey research methods

3 points.

Overview of methods in survey research. Includes defining the aims of a survey, sampling, question-wording and designing the survey instrument, methods of data collection (including face-to-face and telephone interviewing and mail questionnaire), entry of data, elementary data analysis, and writing the report. The organization of survey research, its uses, and ethical issues are also discussed. Student exercises emphasize learning of practical skills.

P8780 Community health development: linking services, training, research, and activism

3 points.

Draws on the instructor's work around inter- and intra-agency system building efforts and linkages between an academic center and community-based agencies and networks in high-risk neighborhoods. The confluence of poverty, AIDS, tuberculosis, substance abuse, and violence in our inner-city neighborhoods makes them key sites for studying the underlying causes of disease and approaches to their prevention and management. East Harlem, the predominantly Latino and black inner-city neighborhood served by the Mount Sinai Medical Center, provides such a strategic setting. Objectives: to (1) provide theoretical underpinnings re community development; (2) operationalize the blueprint by enumerating the corollaries to this framework and demonstrating how they have been applied over the past six years; (3) identify and explore social science methods.

P8781 Critical analysis: a sociomedical sciences journal club

1 point. Offered every other week.

Develops skills to critically analyze journal research articles and the studies on which they are based. Students critically review journal articles in their area of interest from an approved journal source list. Specific learning objectives are to gain familiarity with journals across various disciplines relating to health behavior, health care needs and services; to identify the strengths and weaknesses of research studies by critically analyzing journal articles, specifically focusing on (1) sampling design, (2) conceptualization and measurement, (3) instrumentation, (4) reliability and validity issues, and (5) limits of generalizability; and to experience the usefulness of regular journal reading. Using a roundtable format, each session focuses on two journal articles selected by students. On a rotating basis, students present a summary and a methodological critique of their selected journal article followed by class discussion of the analysis. Requirements include oral presentation of the student's critical review of their selected journal article; attendance; participation in discussions; and a final written report, incorporating class critiques of the critical review presented orally.

P8783 Tutorial: sociomedical aspects of alcohol use

1 to 3 points.

Objectives are to give students awareness and knowledge of: aspects of alcohol use and abuse, including cross-cultural patterns of drinking and problem drinking; definitions of alcoholism; measurement and extent of alcohol-related problems; medical complications; public and professional attitudes; models of social control, prevention, and treatment of alcoholism, including comparisons to other drugs. Assignments are adapted to student's research and/or work interests.

P8786 Ethnographic methods in health research

3 points.

Offers advanced training in the use of ethnographic methods in health research. Explores a range of different qualitative research methods, including participant observation, in-depth interviewing, oral histories, life histories, and case studies, and examines the ways in which these methods can be employed in developing ethnographic studies. Readings draw on different methodological texts and guidelines, as well as a range of published ethnographic studies of different health issues in order to illustrate the use of different approaches. Students are also expected to carry out hands-on observation and interviewing on a regular basis, and receive feedback from the instructor and other class participants on field notes, analysis, and interpretation of ethnographic data.

P8791 Tutorial: self-help alternatives to biomedical therapies

1 to 3 points.

Hypnosis, relaxation, biofeedback, meditation, and other noninvasive, behavioral therapies have been used to control and/or terminate stress-based illness and self-destructive behaviors, i.e., hypertension and cardiovascular disease, surgical pain, headaches, smoking, and overeating. A one- or two-term tutorial with goals of (1) reviewing the psychological, sociological, and anthropological aspects of these alternative therapies; (2) identifying commonalities and differences; (3) developing research strategies for exploring the clinical and preventive use of these therapeutic modalities.

P8795 Social and psychological consequences of institutional and community care

3 points.

Third-party payers and insurance carriers have forced shorter length of hospital stay for most illness, requiring that the rehabilitative phase be managed in the community setting. Exploration of the effects of this change on illness course and outcome (recovery/rehabilitation) and on the family and the community at large. In the health professions, the changing locus of health care delivery has implications for role definitions as well as staffing and organization of services and support programs. Seminar format. Term paper required.

P8796 Tutorial: review of issues and research in the sociodental field

1 to 3 points.

Review of content areas in research with critical issues selected broadly from the sociodental field; evaluation of existing knowledge. Topic areas include sociodental epidemiology; indicators of psychosocial impact of dental conditions; oral health behavior including utilization and preventive dental behavior; patient attitudes and compliance; dental health education; dental manpower; dental care delivery systems. Guided readings and discussions or development of research project. In selecting readings, emphasis is on works involving empirical data, social psychological factors, or using sociomedical research approach.

P8797 Tutorial: review of issues and research on compliance with therapeutic and preventive regimens

1 to 3 points.

Readings and discussion of development of research project. Topics include concepts and methods in defining and measuring compliance; determinants of compliance; strategies for improving compliance. Regimens refer to taking of medications, keeping appointments, carrying out preventive oral home care practices, dietary and other lifestyle changes—smoking, drinking, exercise—recommended for disease prevention and health promotion.

P8799 Research grant proposal writing*3 points.*

In-depth workshop designed to give advanced students an opportunity to prepare their own fundable research proposal. Each week students are introduced to a different step in the research grant application process using the National Institutes of Health (NIH) format. In addition, each student becomes knowledgeable about specific program initiatives and priorities, the grant mechanisms relevant at each stage of a typical research career, and the importance of team playing in large research projects. They also learn the importance of developing relationships with project officers and how the NIH peer review process works. The class uses a similar process to constructively critique and rate one another's completed research proposals.

P9704 Tutorial: interdisciplinary work*1 to 3 points.*

Readings and discussion of various types of interdisciplinary work (collaboration between practicing professions, between academic disciplines, and between practicing professions and academic disciplines) and the conceptual, organizational, historical, and other social factors that facilitate and inhibit interdisciplinary work. Focus on social science research and teaching, with special emphasis on their application to health and health care. Students are expected to (1) develop an understanding of the nature of interdisciplinary work and the factors that promote and inhibit it; and (2) formulate questions and design empirical research studies investigating these issues. Case studies of interdisciplinary projects.

P9740 History and policy: boundaries and interactions*3 points.*

Prerequisites: *Public Health P8716, P8773; History G8732 The social history of American medicine.* Considers the intersection of history and policy. Using a variety of case studies, students learn to identify the different ways history is used and abused in the policy arena. Each case study underscores the ways in which history shapes and is shaped by policy. In exploring this dynamic link between history and policy, students learn to use history to comment on policy and to use current policy dilemmas to rethink history.

P9775 Qualitative research methods II*3 points.*

Continuation of the fall semester, *Public Health P8775 Qualitative research methods I (Course I)*. Course II introduces the student to the range and application of qualitative methods available for research. In addition to readings and lectures, students design and complete an individual project that includes data collection, analyses, and report writing. Some students express an interest in refining their skills in this area. This course addresses that need by providing an opportunity for students to work on challenging projects, and to extend their knowledge of research methods.

P9779 Advanced research methods and analysis*3 points.*

An advanced methods seminar for doctoral students in public health and the social sciences. The course objective is to provide students with instruction and hands-on experience in applying methods of quantitative analysis to research problems in social sciences with an emphasis on public health, health care, and health behaviors. Topics covered include formulation of research questions and hypotheses, issues in complex sample design, measurement of variables, specification and estimation of single equations and systems of simultaneous equations to model causal relationships. Combines didactic lectures and active participation

of students in computer labs and class presentations. Requirements center on analysis of a single data base provided by instructors. Students devise a research study and work in small groups to investigate the problem with the class data base.

P9780 Sociomedical sciences doctoral research seminar*3 points.*

Required for all Sociomedical Sciences doctoral students. Seminar provides a regular opportunity for critical discussion of doctoral dissertation research, from conceptualization through design, data collection, data analysis, and implications.

P6790, P8790, P9790 Tutorials in sociomedical sciences*1 to 3 points.*

Primarily for students who wish to acquire further knowledge and research skills in areas of special interest. Individual or small-group reading tutorials or guided independent research.

Also:

Offered through the Department of History, Graduate School of Arts and Sciences:

History G8732 The social history of American medicine*3 points.*

The aim is to explore major themes, approaches, and interpretations of the history of medicine, with particular attention to the impact of culture upon medicine and medicine upon culture. Focus is on the United States in the 19th and 20th centuries, with frequent references to European developments.

Offered through the Law School:

Law L6427 Law and social science*3 points.*

Examines the influence of social science research on procedure, evidence and substantive legal areas, as well as the interactions of substantive law, legal analysis, social science findings, and social science method. First, we briefly review the origins of the use of social science in law, concluding with recent developments such as Daubert. Next, we consider the critical elements of social science research. We consider the complex issues that arise when social science is used to determine facts, to make or change laws, and to establish a context or framework for deciding specific cases. Finally, we review how social science can be used in planning litigation. Included are case studies of specific substantive areas of the law, case studies of the uses of social science methods to establish evidence, and case presentations. Grades based on student presentation of applications of social science in the law and a final paper.

Law L9041 Seminar in criminology*2 points.*

There are important questions that need to be answered as to how the criminal law should be structured and the role that criminal law and social policy should play in society's response to antisocial behavior. The seminar examines various theories of crime, from the "classical" criminology of the 1970s, exploring their philosophical assumptions, their policy implications for the criminal law, empirical studies and findings that arguably support or refute them, and their leading contemporary exponents. Both general and specific crime problems are discussed, including contemporary issues such as homicide, drug crimes, and family violence.

ADMISSION REQUIREMENTS AND APPLICATION PROCEDURES

Application materials and instructions for the two application options—Online or Paper—are given following page 95 in the back of this Bulletin.

Degrees and Programs

The Joseph L. Mailman School of Public Health awards the following degrees:

MASTER OF PUBLIC HEALTH (M.P.H.)

MASTER OF SCIENCE (M.S.)

DOCTOR OF PUBLIC HEALTH (Dr.P.H.)

The admissions information in this section is relevant to these degree choices. For information about concentrations within these degree programs, and level of study (master's, doctoral) offered within concentrations, see the *Academic Programs* section of this Bulletin.

In addition, the School cooperates with other schools of the University in **DUAL DEGREE PROGRAMS** leading to:

M.P.H. and Doctor of Medicine (M.D.)
 M.P.H. and Doctor of Dental Surgery (D.D.S.)
 M.S. in Health Policy and Management and Doctor of Medicine (M.D.) or Dentistry (D.D.S.)
 M.P.H. and Master of Science in Nursing (M.S.)
 M.P.H. and Master of Science in Occupational Therapy (M.S.)
 M.P.H. and Master of Business Administration (M.B.A.)
 M.P.H. and Master of International Affairs (M.I.A.)
 M.P.H. and Master of Public Administration (M.P.A.)
 M.P.H. and Master of Science in Social Work (M.S.)
 M.P.H. and Master of Science in Urban Planning (M.S.)

Additional information on dual degree programs can be found in the *Degree Requirements* section of this Bulletin and in the bulletins of the participating schools. Application is made to both the Mailman School of Public Health (using the application materials in this Bulletin) and to the participating school.

Ph.D. DEGREE

The School also cooperates with the Graduate School of Arts and Sciences in programs leading to the **DOCTOR OF PHILOSOPHY (Ph.D.)** degree. Admissions and application information on these programs should be obtained from the Divisions of Biostatistics, Environmental Health Sciences, Epidemiology, or Sociomedical Sciences, or directly from the Admissions Office of the Columbia University Graduate School of Arts and Sciences, New York, NY 10027, (212) 845-4737. Applicants may also download a Ph.D. application over the WorldWide Web (<http://www.columbia.edu/cu/gsas/download.html/>).

Application Dates

A complete application, application fee, and all supporting credentials should be submitted by the following dates:

Fall (September) Admission—March 15*

Spring (January) Admission—October 1

Summer (May) Admission—February 15

*June 15 for the Executive M.P.H. program in Health Services Management.

A limited number of openings may be available after these dates. Early application is advised. Late applications will be reviewed at the discretion of the School.

Applicants who wish to be considered for financial aid, and/or University housing are urged to apply well before these dates since resources are limited and not all students accepted into the School can be accommodated. Also, international applicants who need visa documents should apply early to ensure adequate time for preparation and mailing of forms.

Admission Requirements

All applicants must have a bachelor's degree from a recognized university or college, show evidence of satisfactory preparation in quantitative subject areas, and have an acceptable academic record.

Some previous professional or other relevant work experience is highly desirable. In addition, Divisions may have specific pre-admission requirements for some programs and tracks. (Refer to the *Academic Programs* section of this Bulletin.)

All applicants to Dr.P.H. programs must have earned the M.P.H. degree or its equivalent. Applicants admitted with other master's or doctoral degrees are usually required to take a number of predoctoral public health courses, including the School's core courses. In considering applicants for admission for doctoral work, faculty consider records of academic ability and professional accomplishments and evidence of the applicant's potential to realize expressed goals.

All applicants to dual degree programs must submit a separate application to each of the participating schools. For example, in applying for the dual M.P.H./M.B.A. degree program, an applicant must apply to both the Mailman School of Public Health and the Columbia Business School. After receiving acceptance from each of the schools, the student becomes eligible to follow dual degree guidelines. Early application to dual programs facilitates integration of academic content and is strongly encouraged.

Special (Nondegree) Students: A limited number of applicants may be granted admission as special (nondegree) students, to take courses for credit. Appropriate candidates for nondegree status would include fellows in clinical departments in the Columbia Presbyterian Center, or graduates of our degree programs seeking selected additional courses. No more than 6 points may be taken in nondegree status unless permission is given by the Office of the Dean.

Applicants for nondegree status follow the same application procedures as other applicants, including submission of all materials included under the "Checklist" below. There is an expedited application process for alumni of the School.

International Students*: Graduates of foreign colleges or universities who have completed an academic program equivalent to an American bachelor's degree are eligible to apply for admission. Applicants are required to submit with their application official certified transcript(s) in English. Applicants should submit all materials in the "Checklist" below. In addition, the *Test of English as a Foreign Language (TOEFL)* is required of all applicants whose native language is not English, and a computer test score of 250 or higher is expected. Applicants who received their first university degree in an English-speaking country may request an exemption from TOEFL. Applicants with significant deficiencies in written and/or spoken English may be required to take a diagnostic test in English when they arrive at the University to determine whether further language preparation is necessary before beginning studies in Public Health. One or more terms of coursework at the American Language Program (A.L.P.) at Columbia University may be recommended or may be required before a student is

permitted to earn degree credits. Information may be obtained directly from A.L.P. by writing, calling, or e-mailing:

American Language Program, Columbia University
504 Lewisohn Hall, Mail Code 4113, 2970 Broadway
New York, NY 10027, USA
Phone: (212) 854-3584; Fax: (212) 932-7651
E-mail: alp@columbia.edu

Arrangements to take the Test of English as a Foreign Language should be made in writing directly to TOEFL, Box 6151, Princeton, NJ 08541-6151, USA, or to their Web site at <http://www.toefl.org/> or fax at (609) 771-7500. Test results must be available well in advance of the semester in which the applicant plans to register.

The International Students and Scholars Office (ISSO) of Columbia University (524 Riverside Drive; mailing address: Mail Code 5724, 2960 Broadway, New York, NY 10027; phone: 212-854-3587; e-mail: isso@columbia.edu) provides visa services to international students during their stay at Columbia. Information on applying for an F-1 (student) visa or J-1 (exchange visitor) visa through ISSO is sent to international students with their admission letter. ISSO can also advise on visas for spouse and children of students.

Part-Time Study: Master's and doctoral students are admitted on either a full-time or part-time basis, although some programs admit only full-time students. Refer to the *Academic Programs* section of this Bulletin. Usually, part-time students are expected to take no fewer than 6 points per term. Course schedules contain a substantial number of evening courses; however, degree candidates will not be able to meet all course requirements during evening hours, except in the Evening Program in Health Promotion and Disease Prevention (Sociomedical Sciences). Some day classes and perhaps a summer session may be needed to complete degree requirements. Part-time candidates for the M.P.H. degree are expected to complete all degree requirements within a five-year period.

Term of First Enrollment: Academic terms begin in September, January, or May, although admission in September (fall term) is recommended and may be required in some concentrations. Refer to the *Academic Programs* section of this Bulletin.

Application Procedures and Checklist

Application materials are inserted at the back of this Bulletin. A completed application consists of the following:

- Application Cover Sheet.
- Personal statement for Division/program of choice—guidelines are provided on the Application Cover Sheet.
- Three references submitted in sealed and signed envelopes (see References below).
- Official Transcripts in sealed envelopes from all colleges and universities attended (see Transcripts below).
- Check or money order for \$60 (U.S. currency) payable to Columbia University. This application fee is nonrefundable.
- GRE General Test scores sent directly to the Admissions Office by the Educational Testing Service (ETS); TOEFL scores for international applicants (see above) sent directly from ETS.

*This information also applies to students who have received their education in a language other than English.

References: Send the "Letter of Recommendation" forms to the referees, preferably those who know your professional and academic qualifications. The forms instruct the evaluators to enclose the reference in an envelope, seal and sign across the seal, and return the reference to the applicant. *The sealed envelope must not be opened.*

Transcripts: The Admissions Committee requires an official transcript from each of the colleges and universities listed on the Application Cover Sheet. Official transcripts bearing the school's seal or stamp are to be submitted in signed, sealed envelopes. The signature or seal across the flap of the envelope guarantees the confidentiality of the contents. Materials in opened, unsigned, or unsealed envelopes cannot be accepted.

The **Graduate Record Examination (GRE) General Test** is a requirement for admission.* The computer-based GRE is given year-round. Arrangements to take the *Graduate Record Examination (GRE) General Test* should be made directly through Graduate Record Examinations, Educational Testing Service, Box 6000, Princeton, NJ 08540-6000, (609) 771-7670, <http://www.gre.org>. GRE test results are required for Admissions Committee review.

To report scores, use Institution Code No. 2159 and Department Code No. 0616.

**A test score received on the Medical, Dental, or Law School Admission Test (MCAT, DAT, LSAT) may be acceptable as a substitute for the GRE, at the discretion of the Admissions Committee, but the GRE score is preferred.*

Interviews: Personal interviews are not required in all cases but may be requested by Admissions reviewers.

APPLICATION OPTIONS

All of the documents listed above, except the standardized test scores (GRE, TOEFL, etc.), should be assembled by the applicant and sent as a single package in the envelope provided at the back of the Bulletin.

Online Application is another option for applicants. Application is initiated through the School's Web site, and the remaining materials are sent through the mail. For full instructions go to <http://cpmcnet.columbia.edu/dept/sph/>.

Pre-enrollment Requirements

HEALTH REQUIREMENTS

Medical Examination: A medical examination is requested of every new full-time student before registering in the School for the first time. This examination is to be administered by the student's own physician and reported on a health certificate which will be provided to the student by the Health Sciences Campus Student Health Service prior to registration. Half-time and part-time students who intend to enroll in the Student Health Service must also complete and return a health certificate.

Immunization: Columbia University's policy, based on New York State and Columbia Health Sciences requirements, mandates that ALL students must prove immunity to measles (rubeola), mumps, and rubella (MMR) in order to register for classes. **Information on the several ways (blood tests, inoculation, etc.) a student may comply with this requirement will be provided with the offer of admission sent to accepted applicants. Questions on this requirement should be directed to the Health Sciences Campus Student Health Service Office, (212) 795-4181, ext. 115.**

COMPUTER COMPETENCY

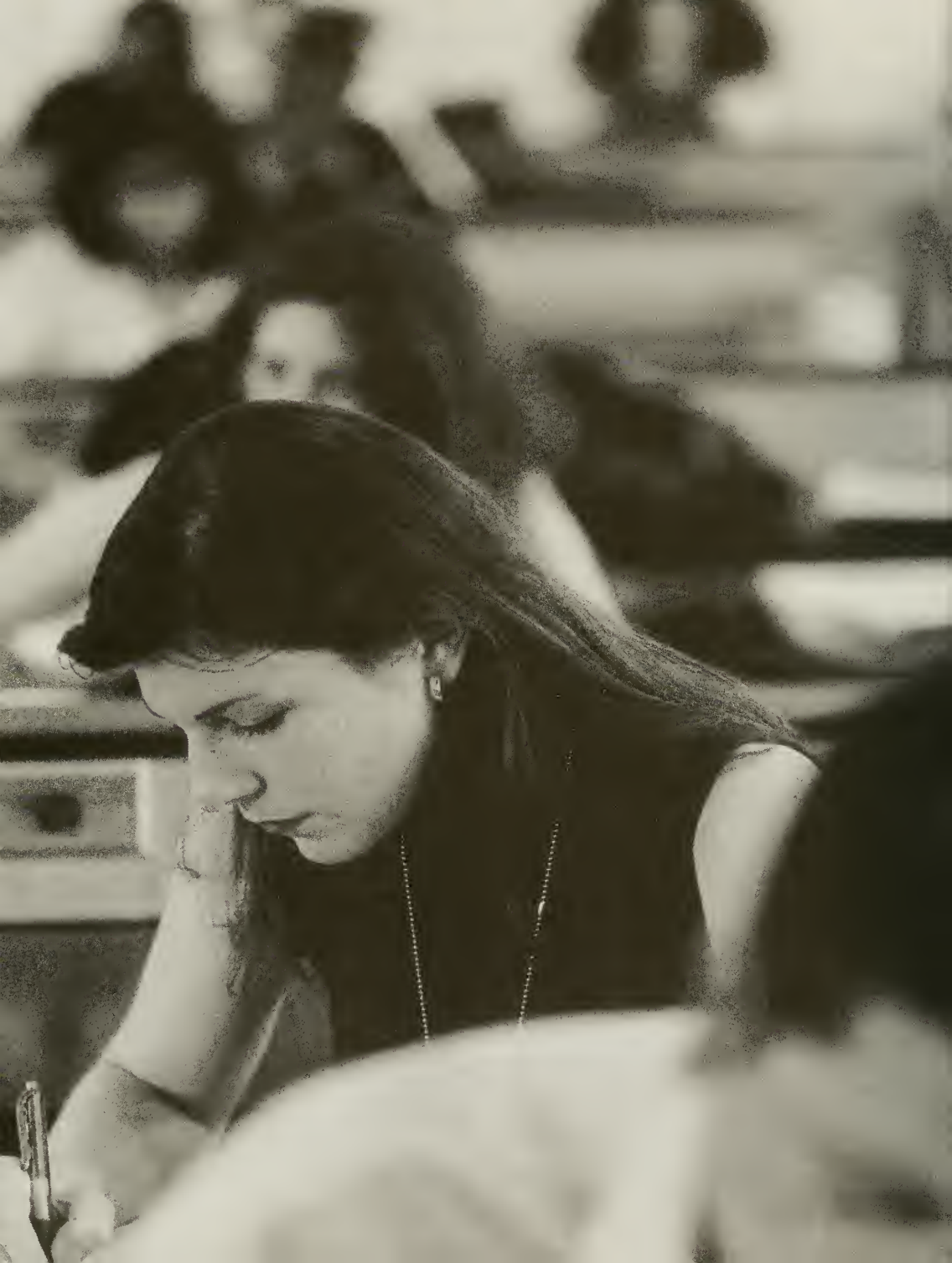
New students are expected to have a working knowledge of personal computers and commonly used software programs, especially word processing. Also, students should anticipate that in some areas of public health practice and research and in some advanced courses they may be expected to use other types of software programs for database management, spreadsheet, and statistical analysis.

It is outside the scope of the School's curriculum to provide intensive training in computers. Students should plan to obtain basic computer skills before starting their program, or outside of classroom hours, as a necessity for effective performance as a student and as a working public health professional. For students who may need them, some short, noncredit computer courses are available through the University in specific areas and applications.

Transfer Credits

The M.P.H. degree at the Mailman School of Public Health requires a total of 45 points of academic credit. Following the successful completion of at least one term of coursework in the School, transfer points from an accredited school may be granted toward M.P.H. degree requirements for graduate courses not counted toward another degree, and determined appropriate by the student's Division to the student's program concentration. No more than 15 points may be transferred.

Requests for transfer credit must be made in writing by the student, approved by an academic advisor in the student's Division or program, and by the Dean's Office. Requests must be accompanied by adequate documentation (official transcript showing successful completion of course, course outline, etc.).



FEES, EXPENSES, FINANCING PLANS

Fees

The following fees, prescribed by statute, will be in effect for **1999–2000** and are subject to change at the discretion of the Trustees. Students should anticipate increases in later years.

University charges such as tuition and fees and residence halls are subject to a **FINANCE CHARGE** if not paid when due.

Tuition

For all courses, per point	\$ 786
Per term (at 15 points)	11,790
For practicum/residency the fee, per term, is	786

Health Service and Hospital Insurance Fees

For all full-time students (optional for part-time students):

	Student	Two Persons	Student & Family
Blue Cross Hospitalization Per year (Sept. 1–Aug. 31)	\$ 485	\$ 950	\$1,415
Student Health Service Per year (Sept. 1–Aug. 31)	955	1,910	2,865
Total health fees	\$1,440	\$2,860	\$4,280

The student health service fee covers a comprehensive prepaid medical/surgical plan through the Health Sciences Campus Student Health Service. The hospital insurance fee pays the annual premium for hospital coverage through Empire Blue Cross. Students who already carry hospital insurance may waive the fee upon presentation of proof of coverage during the open enrollment period. Participation in these programs is compulsory for full-time students. Part-time students are encouraged to participate in the combined plan.

Upon payment of additional fees indicated above, students can also acquire the health service and hospital insurance coverage for their dependents. Enrollment in hospital insurance only is not permitted. Students should consult the Student Health Service for further information on dependent coverage.

There are two open enrollment periods when students elect or change coverage, generally during the months of September and January. Benefits are effective immediately after enrollment, without a waiting period. The Student Health Service Enrollment Office is at 60 Haven Avenue, (212) 795-4181.

Application Fee

Application for admission (nonrefundable)	\$60
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Reservation Fee

Fee for accepted applicant to hold a place in the entering class (nonrefundable). Applied toward tuition upon registration.	\$250
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Student Activities Fee

Per term	\$10
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Computer Access Fee

Per term	\$24
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Transcript Fee

Applied one time at first registration. No further fees will be charged for transcript requests.	\$45
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International Student Service Fee

For students on nonresident visas, per term	\$50
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Late Registration Fees

During late registration	\$ 50
After late registration	100

Withdrawal and Adjustment of Fees

With the passage of the Higher Education Amendments of 1992 (Public Law 102-325), the University is required to implement a pro rata refund policy for students who do not register or who withdraw or otherwise fail to complete an enrollment period. Refunds are a percentage of charges (including tuition, dining, and housing) assessed to the student based on the date of the student's last day of attendance (separation) as reported by the dean of the student's school.

All students will be charged a withdrawal fee of \$75.

A refund calculation will be based on the last day of attendance; however, a student may be charged for services (e.g., housing, dining) utilized after the last day of attendance. These charges should not be paid with Title IV funds.

Certain fees are not refundable: fees for services used prior to withdrawal, for materials and equipment purchased, for services that continue to be available after withdrawal, and fees paid to outside entities generally will not be refunded. Fees not subject to refund: health service, medical insurance/Blue Cross, catastrophic insurance, course-related fees (labs, etc.), dental kit, microscope,

case books, disability insurance, malpractice insurance, materials fee, orientation fee, international student services charge, late registration fee, late payment fee, finance charges, computer fee, withdrawal fee.

Students will not be entitled to any portion of a refund until all Title IV programs are credited and all outstanding charges have been paid.

Refunds will be credited in the following order: Federal Stafford Loans, Federal Unsubsidized Stafford Loans, Federal Supplemental Loan to Students (SLS), Federal PLUS Loans (when disbursed through the University), Federal Perkins Loan, Federal Pell Grant Program, Federal Supplemental Educational Opportunity Grant Program, other Title IV programs, non-Title IV funds, and, finally, any remaining credit balance to the student.

The refund percentage is as follows (prorated for calendars of different durations):

First week	100% refund	Sixth week	60%
Second week	90%	Seventh week	60%
Third week	80%	Eighth week	50%
Fourth week	80%	Ninth week	40%
Fifth week	70%	After 9th week	no adjustment

Expenses

ESTIMATE OF EXPENSES

The following University estimates are provided as guidelines to aid the student in planning a twelve-month budget for living and educational expenses while attending the School.

Living expenses (room, board, clothing, laundry, travel, sundries) for twelve months are approximately \$19,115 for an individual student. For students planning to bring a spouse or children, estimates of additional expenses are \$700 monthly for spouse and \$350 monthly for each child, plus additional health and hospital insurance fees as indicated above.

Tuition. 1999–2000 tuition charges are \$786 per point. Full-time study entails 12 or more points per term. Full- and part-time students enroll in the fall and spring terms. Enrollment in the summer term is optional.

Health service and hospital fees and other fees are described above.

The University advises students to open accounts in one of the local banks as soon as they arrive in New York City. Since it often takes as long as three weeks for the first deposit to clear, the student should cover immediate expenses by bringing traveler's checks or a draft drawn on a local bank. Students who expect to receive traineeship or scholarship support from Columbia University should be prepared to wait up to four weeks for the receipt of their initial stipend checks.

Tuition and room rent may, of course, be paid by check. Any excess will be refunded to the student after the check has cleared.

Housing

At the Health Sciences Campus

Accommodations are limited in number and may not be available to all students accepted into the School. Applicants are encouraged

to pursue non-University housing options whenever possible, including the newly established Off-Campus Housing Resource Center located in Bard Hall, 50 Haven Avenue, Room 105.

The University maintains housing for single students and couples enrolled in approved full-time academic programs. Housing for couples at the Health Sciences campus is available to married couples and couples living in domestic partnership. Because of the very limited availability of such housing, the status of couples applying for housing will be verified.

Housing on the Health Sciences campus is coordinated through the Health Sciences Housing Office, Bard Hall, 50 Haven Avenue, New York, NY 10032, (212) 304-7000. Housing assignments are made on the basis of distance from campus, date of receipt of application, access to alternative housing or resources for commuting, and accommodation availability.

Housing options include single dormitory rooms, studio apartments, and suites. All single student accommodations are furnished; all couples housing is unfurnished. Couples with children are eligible for the two- and three-bedroom apartments. Telephone service is not included in the monthly rental. All buildings have laundry facilities. Elevator and doorman service is available in all buildings except 106 Haven Avenue. All accommodations are "wired" and equipped with a data/voice jack that can provide access to both the campus telecommunications system and campus computer network.

Commuter Parking: A limited number of University parking spaces may be available for students who commute to the Health Sciences campus. Parking application forms can be obtained from the Office of Student Services and need to be certified by that office. Students who live in University Housing on the Health Sciences campus are not eligible for University parking.

Evening parking for enrolled students may be available at a reduced rate in the New York Presbyterian Hospital parking lot after 5:00 p.m. Information can be obtained from the Hospital Security Office at 620 West 168th Street.

At the Morningside Campus

Housing at the Morningside campus may be available to students in dual degree programs who are enrolled at the Morningside campus. Information on residence halls and unfurnished apartments at the Morningside campus may be obtained through the Residence Halls Assignments Office, Columbia University, 111 Wallach, Mail Code 4202, 1116 Amsterdam Ave., New York, NY 10027.

Students who wish to live in rooms or apartments off campus in the Morningside area may consult the Registry of Off-Campus Accommodations, Columbia University, 115 Hartley, Mail Code 3001, 1124 Amsterdam Ave., New York, NY 10027, for information. A letter of admission or student I.D. must be in hand to use this service.

International House, a privately owned student residence near the Morningside campus, has accommodations for about 750 students, both international and American. To be eligible for admission, a student must be at least twenty-one years old and must be registered for at least 12 points or for a program of full-time research. Inquiries should be directed to the Admissions Office, International House, 500 Riverside Drive, New York, NY 10027, (212) 316-8436.

Financing Plans

Monthly Tuition Payment Plan

The Columbia Payment Plan allows all students to pay for tuition and fees through *interest-free* equal installment payments instead of making a lump-sum payment at the beginning of each academic term. Only education expenses that are billed through the student's account at Columbia University, including tuition and other fees, are covered through this Plan. Personal expenses such as off-campus housing, travel, and entertainment may not be included.

Students may sign up for an entire academic year or fall term only (enrollment deadline June 15) or for spring only (enrollment deadline November 15). Late applications may be accepted, but past-due payments must be made. For new applicants to the Columbia Payment Plan, the fee for the academic-year 1999–2000 is \$45; for renewals, \$40; enrollment for one term only, \$25. Fees may be paid by Visa, MasterCard, or check.

Installment payments begin July 1 for the academic year or fall term only; December 1 for the spring term only. Payments are made directly to USAGroup, the organization handling the Columbia Payment Plan. Students can call USAGroup at (800) 348-4607 to enroll by phone or to request an application.

Financial Aid Opportunities

HOW TO APPLY FOR FINANCIAL AID

Applicants who qualify for financial aid will receive a financial aid package consisting of loans, grants from institutional funds, and a work-study allocation.

Applicants to the School may receive a financial aid kit by calling the Office of Student Financial Services, (212) 305-4113. Applicants are advised not to wait until they are admitted to apply for financial aid. The Free Application for Federal Student Aid (FAFSA) must be filed with the U.S. Department of Education, and Attachment A must be completed and returned to the Office of Student Financial Services. Both forms are included in the kit. A copy of the applicant's most recent federal income tax return is also required.

Applicants may take advantage of the FAFSA Express program which allows students to complete the form electronically through the U.S. Department of Education's WorldWide Web site (www.ed.gov/offices/OPE/express.html). The Title IV school code to be entered on the FAFSA form is E00127.

A student's financial need is based on the University's Schedule of Estimated Expenses, combined with the FAFSA information. These guidelines will provide a student with a modest, but adequate, standard of living. Typical financial aid packages consist of federal and private loans, grants from institutional funds, and work-study allocations. Applicants who qualify for institutional grants are expected to apply for a Stafford Loan up to the maximum set by the state or the amount certified by the School (see Federal Loan Programs).

FEDERAL LOAN PROGRAMS

Subsidized Stafford Loan Program is a federally insured, federally subsidized loan from a bank, savings and loan association, credit union, or other participating lender. These loans are administered by a state guarantee agency. The maximum amount a

student may borrow for an academic year is \$8,500. Repayment of interest and principal is usually deferred until after the student is no longer registered at least half-time. Applications are available from participating lenders.

Unsubsidized Stafford Loan Program is available to all students enrolled at least half time, regardless of income. Students are charged interest immediately upon disbursement of the loan until it is paid in full. The applicable rate of interest is variable, adjusted annually on July 1, not to exceed 8.25 percent. Graduate students may borrow up to \$10,000 per year. The cumulative maximum for a borrower is \$138,500 (only \$65,500 of this amount may be in subsidized loans). Students whose need is less than the loan limits for the federal Stafford Loan will be able to borrow up to those loan limits under the Unsubsidized Stafford Loan Program.

Perkins Loan Program, by federal regulations, mandates that priority for Perkins Loans are assigned to students who show exceptional need. Repayment of interest and principal is deferred while the student is registered at least half time.

Eligibility:

- U.S. citizens and permanent residents
- degree candidates registered for at least half-time maintaining satisfactory academic progress
- completed FAFSA on file in the School's Office of Student Financial Services
- demonstrated financial need
- financial status verified by the School's Office of Student Financial Services

SCHOLARSHIPS, FELLOWSHIPS, TRAINEESHIPS

U.S. Public Health Traineeship Award is a program sponsored by the United States Public Health Service for matriculated students (full-time, at least 12 points, or part time, at least 6 points). Traineeships are available based on need, to students entering an academic program identified as a severe shortage area, i.e., Epidemiology, Biostatistics, Environmental Health Sciences, Health Policy and Management, and Sociomedical Sciences.

University General Income Scholarship: The General Income Scholarship is a need-based scholarship awarded by the School. This award may be adjusted if the student receives other institutional support.

Community Scholars Program: The Community Scholars Program is available to students and accepted applicants in the Division of Sociomedical Sciences. It provides a 50 percent tuition scholarship for students selected on a competitive basis. Community Scholars must demonstrate a commitment to serving underserved populations. This award is administered through the Office of Community and Minority Affairs.

Public Health Scholars Program: The Public Health Scholars Program provides tuition scholarship of 25 to 75 percent, depending on need, to employees of the New York City Department of Health or the New York State Department of Health. Up to five Public Health Scholars are selected each academic year. Eligible applicants for this program must have been accepted for admission to a degree program in The Joseph L. Mailman School of Public Health. Public Health Scholars continue their employment while participating in this program.

The Macy Scholars M.P.H./M.D. Program: Students completing the third year of medical school at one of six participating medical schools in New York City (see "Degree Requirements: Dual Degree Programs") can apply for a fully funded fifth year of study as a Macy Scholar. This 45-point Master of Public Health degree program is a collaborative effort of the School and the Josiah Macy Jr. Foundation, which provides the funding for this program. A maximum of twelve Macy scholars will be able to select a specialization from several divisional programs offered by the School. The program begins in July, at the end of the third year of medical school. For further information contact the Macy Scholars program coordinator at (212) 305-3934.

Hispanic Fellowship Program: The Division of Population and Family Health, through the Hispanic Fellowship Program, provides full tuition support and research assistantship opportunities for qualified applicants. Scholars must have prior public health work experience with Hispanic populations, and a commitment to serve Hispanic populations in the future. The program focuses on serving a low-income, immigrant Hispanic community through reproductive, adolescent, and child health programs run by the Division of Population and Family Health. Contact the Division for more information and application forms.

OTHER SOURCES OF FINANCING

New York State Tuition Assistance Program (TAP): Any student who is a legal resident of New York State and a full-time degree candidate is eligible to apply for a TAP award. The amount is determined by the New York State Higher Education Services Corporation guidelines. The award is based upon the net taxable balance of the student's income and the income of the person(s) responsible for his or her support, as reported on the New York State income tax return for the previous calendar year.

Credit-Based Loan Programs: There are a number of loan programs that are available to students based on credit worthiness. These loans are not deferred and usually entail a higher interest rate than the Stafford Loan. However, they are useful to students unable to demonstrate financial need. Contact the School's Office of Student Financial Services for additional information.

Veterans Benefits: A veteran of the armed forces who has served on active duty for at least 180 days and received an honorable discharge is eligible for veterans benefits. For further information consult the regional Veterans Administration Office.

International students (except those students with Permanent Resident status) are not eligible for the traineeship and government loan programs administered by the School and are advised to seek financial aid through their country of citizenship, private foundations, and international agencies such as the World Health Organization, Pan American Health Organization, and the Rotary International.

Some Divisions have secured traineeships or fellowships in specialized areas of study that allow international student participation. Contact your Division for additional information.

STUDENT EMPLOYMENT OPPORTUNITIES

In addition to financial packages offered by the School, there are a limited number of fellowships, scholarships, and traineeships for pre- and/or postdoctoral study available on a competitive basis. Awards may include tuition and stipend. Information about the fellowships and training programs in specific research areas is available in several Divisions, for example, *Biostatistics*: Mental Health Statistics; Patient Oriented Research; *Epidemiology*: Cancer Epidemiology; Cardiovascular Epidemiology; Neuroepidemiology; Psychiatric Epidemiology; *Sociomedical Sciences*: Sexuality, Gender, Health and Human Rights.

Graduate Research Assistantship (G.R.A.): Divisions have graduate research assistant positions on a limited basis. Students gain valuable experience working part-time on faculty-run research projects and receive a stipend and/or tuition assistance. Students need to consult their divisional coordinator for information on research appointments.

Teaching Assistantship (T.A.): Most Divisions have teaching assistantship positions for a limited number of students who have substantial preparation in the study area. T.A.'s provide part-time assistance to faculty members in instruction, grading, and/or course administration. They receive a stipend and/or tuition assistance. Consult Divisions for further information.

Work-Study: Students certified by the financial aid officer as eligible for federally funded work-study may choose from a variety of part-time employment positions. Jobs are available in many offices throughout the School and the University. Work-study job listings are available in the Office of Student Financial Services or on the University Web site (<http://www.columbia.edu/cu/jobs/>). Students who will begin graduate work during the regular year may hold work-study positions during the summer prior to their first registration.

* You may also check the Columbia University Student Financial Services' Web site (<http://www.columbia.edu/cu/sfs/>), as well as the School's Web site (<http://cpmnet.columbia.edu/dept/spb/>), for additional information on financial aid resources.

STUDENT SERVICES/STUDENT LIFE

New York City

Students at the Mailman School benefit from the vast cultural and educational resources of this international city. Most of New York's attractions can be accessed conveniently through the extensive and inexpensive public transportation system which combines subway, bus, ferry, and rail services. The city has the nation's largest concentration of theatres and museums, including the

Metropolitan Museum of Art, the Museum of Natural History, and the Museum of Modern Art. Every musical taste from classical to opera to rock, jazz, and country can be accommodated at world-class level. Major dance companies perform regularly. Year-round sports excitement is provided by the Knicks, Jets, Rangers, Mets, and Yankees. Restaurants abound, and virtually every cuisine at every price level is represented. A great city for walking and "people watching," it is intense and endlessly fascinating.



Class has ended and the choice of what to do next in New York City is never easy. Students stop to discuss the many possibilities before heading for a subway or bus.

Health Sciences Campus

The Mailman School is located within the 20-acre Columbia Presbyterian Center/Columbia University Health Sciences campus in northern Manhattan, an area of great historical significance and natural beauty. The campus is poised above the majestic Hudson River and enjoys a view of the George Washington Bridge and New Jersey Palisades. The campus is located two miles north of the University's Morningside campus and five miles—or a twenty-five-minute subway ride—from midtown Manhattan's cultural and entertainment attractions. A few minutes north of the campus is Fort Tryon Park, famous for its public flower gardens and home to the Cloisters, a branch of the Metropolitan Museum of Art.

The boundaries of the Health Sciences campus, which includes more than twenty buildings, extend from West 165th Street to West 170th Street and from Broadway to the West Side Highway. The campus has seven residential buildings for Health Sciences students and faculty: two dormitories and five apartment-style buildings. The principal academic locations along West 168th Street are the College of Physicians & Surgeons and Alumni Auditorium, the William Black Medical Research Building, the Georgian Building where the School of Nursing is headquartered, the Julius and Armand Hammer Health Sciences Center, and the Vanderbilt Clinic, which houses the School of Dental and Oral Surgery. The New York State Psychiatric Institute, the Neurological Institute, New York Presbyterian Hospital facilities including the Milstein Hospital Building, ambulatory care clinics, and specialty research facilities make up the remainder of the Columbia Presbyterian Center/Columbia University Health Sciences campus. The newest additions to the campus are the Naomi Berrie Diabetes Center, the Audubon Biomedical Science and Technology Park, being developed as a major urban research complex, and the Lasker Biomedical Research Building for commercial tenants and biomedical companies and other research facilities currently in planning.

School of Public Health

Within the Office of the Dean of the School are several units that provide direct service to students:

Office of Student Services

Students are welcome to visit the Office of Student Services at any time to obtain information about School and University resources, or to seek advice or assistance with any academic or campus life problem. The office is located at Georgian Hall, 617 West 168th Street, Room 3-327, (212) 305-3927. In carrying out its information, coordination, and student advocacy roles, this office performs a number of tasks for the School and the student body. It fosters schoolwide communication through frequent academic, administrative, and events announcements; provides program information and counsels prospective students; coordinates admissions reviews; maintains the records of over 700 students in the School; prepares and disseminates semester course schedules and classroom schedules; clears students for graduation; and provides academic, administrative, and student information to faculty. Student Services also plans the major events of the academic year including orientations, receptions, and the School's graduation ceremony. It serves as liaison to other campus and University offices that provide services to students (registrar, health service, housing, international students, etc.) and lends assistance and support to the activities of the Student Government Association and other student organizations.

The office is open Monday through Friday, 9:00 a.m. to 5:00 p.m.; however, every effort is made to accommodate evening appointments for those students who work during the day.

Office of Career Services

The Office of Career Services provides career planning activities and job search resources to both matriculants and alumni of the School. The office, located in Room 316-318 Georgian Hall, (212) 305-3803/1548, is open from 9:00 a.m. to 5:00 p.m. To accommodate busy schedules, appointments can be scheduled at other times by prior arrangement.

The office prepares students for the job market through individual consultations on career development issues, group workshops on job search techniques, employer files for career exploration, and networking referrals to alumni. The office also develops and maintains relationships with a diverse group of employers in the not-for-profit and profit sectors and proactively markets the student population through on-campus recruiting events.

Office publications include the *Job Bulletin*, a monthly compendium of available job opportunities; resume books for students seeking internships and practica as well as full-time permanent job opportunities; and career management/job search strategy guides.

Office of Community and Minority Affairs

The Office of Community and Minority Affairs (OCMA) provides opportunities for Public Health students to work on research and public health service projects in communities throughout the New York metropolitan area. OCMA is affiliated with the Community Research Group at the New York State Psychiatric Institute and offers students an opportunity to provide research and program consultative services to community-based organizations that serve



Tanya Cobbs Leslie, Director of Career Services, advises a student on job opportunities.

the needs of such diverse groups as substance users, HIV-infected persons and their families, and members of medically underserved communities. Some of these placements may be used to fulfill the practicum requirement for the M.P.H. program. The Office of Community and Minority Affairs also offers opportunities for students to discuss their field experiences with professional and student peers. OCMA also provides advisement, technical assistance, and administrative support for the Black and Latino Student Caucus—a student-led organization that promotes diversity in the School and in the health professions—as well as for students who have been selected as Fellows for the Community Scholars Program in the Division of Sociomedical Sciences.

Alumni Association

The Alumni Association is governed by an elected Board of Directors comprised of members-at-large and executive officers. The Board meets bimonthly to plan social and professional activities and functions. An alumni conference is sponsored, focusing on a topic of professional interest to alumni and students. The Alumni Association also sponsors a reception for new and returning students each autumn, and career development activities for students and alumni.

The Alumni Office, in the External Affairs Office of the Office of the Dean, is an administrative office of the School that serves as a liaison between the School and its alumni. The office coordinates services and activities promoting a continued awareness of programs of the School and facilitating alumni involvement in and support of the School. The office also coordinates efforts to identify and recognize alumni for professional achievements and community service.

Student Government Association

The Student Government Association (SGA) is dedicated to improving student life on campus. Utilizing student activity fees, SGA organizes a variety of activities including social events, a brown bag speaker series, panel discussions on health issues, and community outreach activities. Students participate on School and University committees, assist in alumni and School sponsored events, and maintain liaison with other student groups on the Health Sciences and Morningside campuses.

Student Organizations

Within the Mailman School of Public Health there are two student organizations that promote professional development and interaction with faculty and alumni, and provide opportunities to learn about issues in public health and public health careers: the Student Chapter of the American College of Healthcare Executives (ACHE) and the Black and Latino Student Caucus. Both groups also join with the Student Government Association in sponsoring educational and social events for students.

Divisional Seminars

Several Divisions of the School hold regularly scheduled seminars during the academic year that present special topics, methodological advances, faculty or student work-in-progress, or outside speakers. Seminars are open to all students. Information on dates and presenters is available through the Divisions or through the Office of Student Services.

Athletic Facilities

The Bard Athletic Center at 50 Haven Avenue on the Health Sciences campus is a modern health club facility that includes a swimming pool, squash courts, a gymnasium, and a fully equipped exercise room. It offers an aerobics exercise program, a basketball league, and a volleyball group. Staffing includes a certified personal trainer to instruct on the use of equipment and help develop personal fitness programs.

University Services

All students enrolled in the School are entitled to the privileges and use of facilities of the Health Sciences campus as well as the Morningside campus at Broadway and 116th Street. The information below highlights some of the services and benefits available to Public Health students.

International Students and Scholars Office (ISSO)

The International Students and Scholars Office, on the Morningside campus, serves over 3,000 University students from more than 120 countries. All visa services for students in the Mailman School of Public Health are handled through this office. ISSO also provides information about international student clubs at Columbia and about opportunities to attend conferences, travel, and participate in community and cultural activities. Discount tickets to concerts and plays are available through this office. Information can also be obtained there on Metro International, an organization that helps international students to make use of the cultural, ethnic, and professional resources of the city. ISSO sponsors various activities including tours throughout New York and weekend trips to nearby cities. The office also offers seminars on employment, practical training, and tax reporting.

Earl Hall Center

This center, also on the Morningside campus, serves as a forum for religious, educational, advocacy, cultural, and social programs for both American and international students. Clergy of many denominations have offices in Earl Hall and representatives of most major denominations can be reached through Earl Hall.

Shuttle Service

The University provides a shuttle service between the Health Sciences campus and Morningside campus, free to anyone with a University I.D. Schedules are available in the Office of Student Services.

Disability Services

Columbia is committed to serving the needs of students with disabilities. Services to students with permanent or temporary disabilities are coordinated by the University Office of Disability Services in support of the academic program and standards of the School. All student contact and intervention is handled by the designated Liaison Officer within the Mailman School of Public Health, Ms. Phyllis Starner, Director, Office of Student Services, 617 West 168th Street, (212) 305-3927.

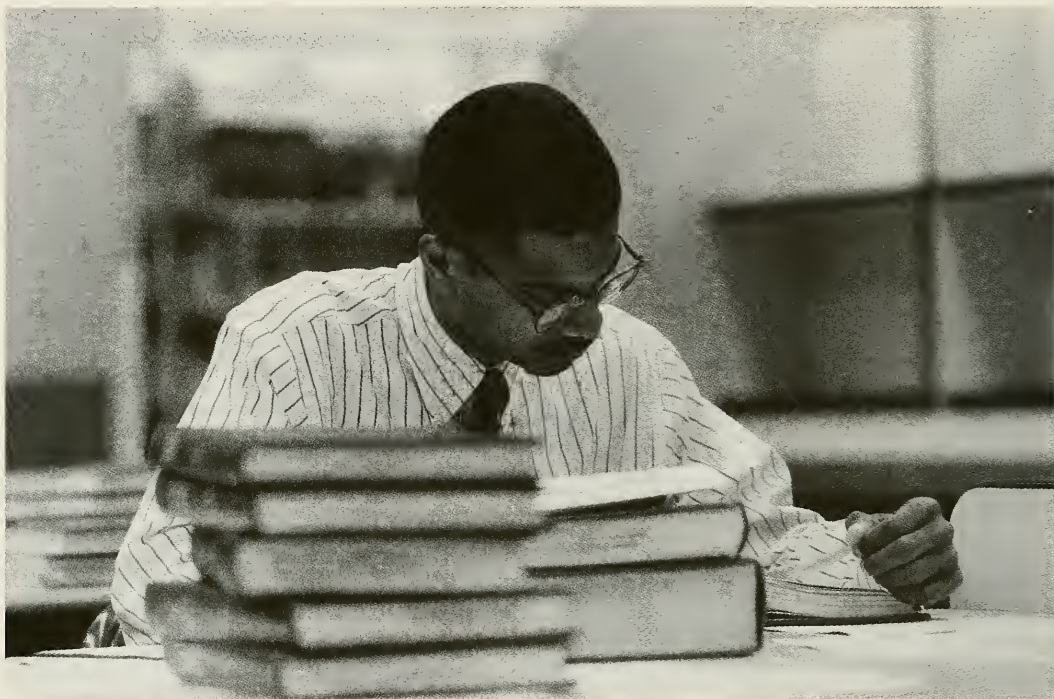
To allow sufficient time for review of needs and implementation of accommodations, students with disabilities are encouraged to contact their Liaison Officer upon acceptance of the School's offer of admission to discuss their needs and plan their academic program.

Before any accommodations can be considered, students must provide current and appropriate medical or diagnostic documentation.

For information, contact Dr. Lynne Bejoian, Director, Columbia University Office of Disability Services, Lerner Hall, 8th Floor, Mail Code 2605, 2920 Broadway, New York, NY 10027; (212) 854-2388 (voice/TDD); fax: (212) 854-3448; e-mail: disability@columbia.edu.

Ombuds Office

The University Ombuds Office is a safe and confidential place to voice concerns. The Ombuds Officer will listen, offer information about Columbia University policies and procedures, present a range of options for resolving a problem, or help find ways to convey information while maintaining the confidentiality of the source. The Ombuds Office is a neutral and confidential resource for informal conflict resolution, serving the entire Columbia University community—students, faculty, and employees.



A student immerses himself in a review of the literature for an assigned class presentation and research paper.

For further information, contact Marsha Wagner, Ombuds Officer, 660 Schermerhorn Extension; telephone: (212) 854-1234; fax: (212) 854-6046; e-mail: ombuds@columbia.edu. On Wednesdays the Ombuds Officer is at the Health Sciences campus office, 101 Bard Hall, 50 Haven Avenue; telephone: (212) 304-7026.

Athletic Facilities

The Dodge Physical Fitness Center on the Morningside campus has courts available for squash, handball, and racquetball, an indoor jogging track, weight room, and swimming pool. The center offers a range of noncredit physical education courses and sponsors club sports. Additional athletic facilities, including an all-weather track and a Tennis Center, are available at the Baker Field Athletic Complex at 218th Street and Broadway.

American Public Health Association (APHA)

APHA is the major professional organization for the public health field. The Association holds an annual scientific meeting each fall that draws over 10,000 national and international participants. Students are urged to become members. Membership includes a subscription to the *American Journal of Public Health*, a peer-reviewed journal devoted to research, scientific studies, and in-depth information on issues affecting public health; opportunities to interact with other professionals in the field; and job placement services. Information on membership is available from the Office of Student Services or from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005, (202) 789-5600, <http://www.apha.org/>.

UNIVERSITY REGULATIONS AND POLICIES

Official Regulations

Reservation of University Rights

This bulletin is intended for the guidance of persons applying for or considering application for admission to Columbia University and for the guidance of Columbia students and faculty. The bulletin sets forth in general the manner in which the University intends to proceed with respect to the matters set forth herein, but the University reserves the right to depart without notice from the terms of this bulletin. The bulletin is not intended to be and should not be regarded as a contract between the University and any student or other person.

University Regulations

According to University regulations, each person whose registration has been completed will be considered a student of the University during the term for which he or she is registered unless the student's connection with the University is officially severed by withdrawal or otherwise. No student registered in any school or college of the University shall at the same time be registered in any other school or college, either of Columbia University or of any other institution, without the specific authorization of the dean or director of the school or college of the University in which the student is first registered.

The privileges of the University are not available to any student until he or she has completed registration. A student who is not officially registered for a University course may not attend the course unless granted auditing privileges. No student may register after the stated period unless he or she obtains the written consent of the appropriate dean or director.

The University reserves the right to withhold the privilege of registration or any other University privilege from any person with an unpaid debt to the University.

ATTENDANCE AND LENGTH OF RESIDENCE

The minimum residence requirement for each Columbia degree is 30 points of coursework completed at Columbia University. A student who wishes to earn both a master's degree and a doctorate from Columbia should be aware that any advanced standing awarded for graduate work completed elsewhere will not reduce the minimum residence required for obtaining both degrees.

Students are held accountable for absences incurred owing to late enrollment.

A student in good standing may, for a valid reason, be granted a leave of absence by the Dean of the School.

RELIGIOUS HOLIDAYS

It is the policy of the University to respect its members' religious beliefs. In compliance with New York State law, each student who is absent from school because of his or her religious beliefs will be given an equivalent opportunity to register for classes or make up any examination, study, or

work requirements that he or she may have missed because of such absence on any particular day or days. No student will be penalized for absence due to religious beliefs, and alternative means will be sought for satisfying the academic requirements involved. (See *Academic Calendar* for dates of religious holidays.)

Officers of administration and of instruction responsible for scheduling of academic activities or essential services are expected to avoid conflict with religious holidays as much as possible. If a suitable arrangement cannot be worked out between the student and the instructor involved, they should consult the appropriate dean or director. If an additional appeal is needed, it may be taken to the Provost.

Academic Discipline

The continuance of each student on the rolls of the University, the receipt of academic credits, graduation, and the conferring of any degree or the granting of any certificate are strictly subject to the disciplinary powers of the University.

Rules of University Conduct

The Rules of University Conduct (Chapter XLI of the Statutes of the University) provide special disciplinary rules applicable to demonstrations, rallies, picketing, and the circulation of petitions. These rules are designed to protect the rights of free expression through peaceful demonstration while at the same time ensuring the proper functioning of the University and the protection of the rights of those who may be affected by such demonstrations.

The Rules of University Conduct are University-wide and supersede all other rules of any school or division. Minor violations of the Rules of Conduct are referred to the normal disciplinary procedures of each school or division ("Dean's Discipline"). A student who is charged with a serious violation of the Rules has the option of choosing Dean's Discipline or a more formal hearing procedure provided in the Rules.

All University faculty, students, and staff are responsible for compliance with the Rules of University Conduct. Copies of the full text are available in *FACETS*, the University student handbook (<http://www.columbia.edu/cu/facets/>), and at the Office of the University Senate, 406 Low Memorial Library.

Policy Statement on Discrimination and Harassment

The following statement was adopted by the Columbia University Senate on April 27, 1990.

As a great center of learning, Columbia University prides itself on being a community committed to free and open discourse and to tolerance of differing views. We take pride, too, in preparing the leaders of our society and exemplifying the values we hope they will uphold. These commitments are subverted by intolerance, bigotry, and harassment. Even in recent history, we must recognize race, ethnicity, religion, gender, sexual orientation, disability, and other irrelevancies have all occasioned attacks

by the ignorant, the foolish, the sick, the evil. Instead of enjoying our differences and the richness they bring to our shared lives, some have chosen to make those differences targets of anger and hate. As a community, we are committed to the principle that individuals are to be treated as human beings rather than dehumanized by treatment as members of a category that represents only one aspect of their identity.

The University resolutely condemns conduct that makes such targets of our differences. The free exchange of ideas central to the University can take place only in an environment that is based on equal opportunity for admission to academic and other programs and to employment, and on freedom from behavior that stigmatizes and victimizes others. All decisions concerning an individual's admission to or participation in any University program must be based on that individual's qualifications, free of stigmatizing consideration of race, color, national or ethnic origin, religion, disability, gender, sexual orientation, marital status, age, citizenship, or Vietnam era or disabled veteran status. Nor will Columbia tolerate any behavior that harasses members of the community on the basis of any of these qualities. Such behavior will be regarded as a violation of the standards of conduct required of any person associated with the University and will subject the person guilty of it to the full range of internal institutional discipline, including permanent separation. While mediation and consensual resolution are of course to be encouraged, we also recognize the right of all persons who believe themselves to have been targets of such behavior to institute a formal grievance. Coercion to require them to overlook or retract their complaints fosters discrimination and harassment and is equally intolerable in our community.

It is not enough to be prepared to respond when ugliness appears. Members of a community such as ours must work preventively as well, to ensure that our dealings with each other are marked by decency and characterized by civility. Columbia is committed to do what it can to engender mutual respect, understanding, and empathy. The University acknowledges a special responsibility to develop sensitivity to the concerns of those who are most vulnerable to discrimination and harassment.

Statement of Nondiscriminatory Policies

The University is publishing the following statements in accordance with certain federal, state, and local statutes and administrative regulations:

Consistent with the requirements of Title IX of the Education Amendments of 1972, as amended, and regulations thereunder, the University does not discriminate on the basis of sex in the conduct or operation of its education programs or activities (including employment therein and admission thereto). Inquiries concerning the application of Title IX may be referred to Ms. Beth Wilson, Associate Provost, who heads the University's Office of Equal Opportunity and Affirmative Action (402 Low Memorial Library, Mail Code 4333, 535 West 116th Street, New York, NY 10027, telephone 212-854-5511), or to the Director, Office for Civil Rights (Region II), 26 Federal Plaza, New York, NY 10278.

Columbia University admits students of any race, color, national and ethnic origin, and age to all the rights, privileges, programs, and activities generally accorded or made available to students at the University. It does not discriminate against any person on the basis of race, color, national and ethnic origin, or age in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other University-administered programs.

Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination against any person on the basis of race, color, or national origin in programs or activities receiving federal financial assistance. Title VII of the Civil Rights Act of 1964, as amended, prohibits employment discrimination against any person because of race, color, religion, sex, or national origin. Executive Order 11246, as amended, prohibits discrimination in employment because of race, color, religion, sex, or national origin and requires affirmative action to ensure equality of opportunity in all aspects of employment. In addition, the New York Human Rights Law, Article 15, Executive Law §296 prohibits discrimination against any person in employment because of age, race, creed, color, national origin, disability, sex, marital status, and genetic predisposition or carrier status.

Consistent with the requirements of Section 504 of the Rehabilitation Act of 1973, as amended, and regulations thereunder, the University does not discriminate against any person on the basis of disability in admission or access to, or employment or treatment in, its programs and activities. Section 503 of the Rehabilitation Act of 1973, as amended, requires affirmative action to employ and advance in employment qualified workers with disabilities. The Americans with Disabilities Act of 1990 also prohibits discrimination in public accommodation and in employment against qualified persons with disabilities. It requires the University to provide qualified applicants and employees with reasonable accommodations that do not impose undue hardship or pose a direct threat of harm to themselves or others.

The Equal Pay Act of 1963 prohibits discrimination on the basis of sex in rates of pay. The Age Discrimination in Employment Act of 1967, as amended, prohibits discrimination in employment on the basis of age. The Age Discrimination Act of 1975 prohibits discrimination on the basis of age in programs and activities receiving federal financial assistance.

Section 313 of the New York Education Law, as amended, prohibits educational institutions from discriminating against persons seeking admission as students to any institution, program, or course because of race, religion, creed, sex, color, marital status, age, or national origin. The New York City Human Rights Law, Title 8, §8-107, makes it an unlawful discriminatory practice for an employer to discriminate against any person because of their age, race, creed, color, national origin, gender, disability, marital status, sexual orientation, or alienage or citizenship status. It also prohibits educational institutions from discriminating against persons in any of the above categories in the provision of certain accommodations, advantages, facilities, or privileges.

On December 1, 1978, the Columbia University Senate passed a resolution announcing its general educational policy on discrimination, which reaffirms the University's commitment to nondiscriminatory policies and practices. The Senate reaffirmed this policy on April 27, 1990, by expanding the categories protected from discrimination and adding protection against harassment as well. Currently, the policies protect against discrimination and harassment on the basis of race, color, gender, religion, national and ethnic origin, age, disability, marital status, sexual orientation, and status as a Vietnam era or disabled veteran.

The Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, (38 U.S.C. 4212), prohibits job discrimination and requires affirmative action to employ and advance in employment qualified special disabled veterans and veterans of the Vietnam era.

All employees, students, and applicants are protected from coercion, intimidation, interference, or retaliation for filing a complaint or assisting in an investigation under any of the foregoing policies and laws.

The University's Office of Equal Opportunity and Affirmative Action has been designated to coordinate compliance activities under each of the programs referred to above. Any employee who believes that he or she has been denied equal opportunity should contact this office, which will informally investigate complaints and offer advice and counsel on questions relating to equal opportunity and affirmative action, including information about applicable formal grievance procedures and agencies where complaints may be filed.

Discrimination Grievance Procedure

The University's Discrimination Grievance Procedure is available to enrolled students who feel that they have been the victims of sexual harassment or discrimination on the basis of race, religion, national or ethnic origin, sex, sexual orientation, marital status, age, disability, citizenship, or Vietnam era or qualified special disabled veteran status. A copy of the Procedure is available in *FACETS*, the University student handbook, and in the office of the Associate Provost for Equal Opportunity and Affirmative Action, 402 Low Memorial Library or 101 Bard Hall; telephone (212) 854-5511.

A complaint under this Procedure is initiated through a written complaint filed with the Equal Opportunity and Affirmative Action Office. Staff in that office will assist with filing the complaint and are also available for confidential counseling and informal investigation of discrimination claims.

The Federal Family Educational Rights and Privacy Act (FERPA)

The University abides by the provisions of the Federal Family Educational Rights and Privacy Act of 1974. This act insures a wide range of rights, including but not limited to: information about student records that the University maintains, who maintains them, who has access to them, and for what purposes access is granted. The act also permits the University to release "directory information" without a student's consent. In addition, the act guarantees students access to their records and restricts the access of others.

Students who wish to restrict access to their directory information may do so at the Registrar's Office, 205 Kent. This same office can provide a set of guidelines and a policy statement. The guidelines are also available on ColumbiaWeb and in the current edition of *FACETS*. Questions about the interpretation of the guidelines should be referred to the University's General Counsel, 412 Low Library.

Protection Against Sexual Harassment

Sexual Harassment

Sexual harassment may occur when someone subjects another person to unwanted sexual activity or attention on the basis of sex. Repeated unwelcome sexual comments, suggestions, or pressures also may constitute sexual harassment if they make a person's learning or working environment intimidating, hostile, or offensive. Sexual harassment can range from coerced sexual relations or physical assault to constant joking or repeated sexually oriented remarks or behavior.

Here are four specific forms that sexual harassment can take:

- Coercion into sexual activity by threats of punishment (such as lower grades, spreading rumors, etc.). What is at stake can go far beyond one grade or a single recommendation or research opportunity: it can mean denial of access to a particular discipline or even a career.
- Solicitation of sexual activity or other sex-related behavior by promise of rewards. This form of harassment suggests there will be a reward for complicity. Put bluntly, it may amount to an attempt to offer higher grades, fellowships, or job opportunities in exchange for sexual favors.
- Inappropriate, offensive, but essentially sanction-free, sexually oriented advances. In this case, sexual harassment can take the form of repeated, uninited requests for social or sexual encounters, often accompanied by touching. These advances are unwelcome and uncomfortable, although they carry with them neither direct nor implied threats or rewards.
- Generalized sexual remarks or behavior. This may or may not be directed at a particular individual. While a single statement probably will not constitute sexual harassment, a pattern of such statements can, if their cumulative effect results in making the working or learning environment intimidating, hostile, or offensive. It can also occur from distributing or posting sexually oriented pictures, posters, magazines, or other visual materials.

If you think you are being sexually harassed, first, stop ignoring the problem. If you are comfortable doing so, confront your harasser. Be polite but firm. Present the facts as you see them, describe how you feel about what has happened, make clear that the behavior is unwelcome, and say that you want it to stop. If you are reluctant to have this conversation face-to-face, put it in a letter, preferably delivered by registered mail, and keep a copy. Tell someone you trust what happened to you, and tell them right away (for support, advice, future reference).

If that does not work, or if you are reluctant to have any dealings at all with your harasser, you may—and should—go to your Dean of Students Office, the Office of Equal Opportunity and Affirmative Action, the Ombuds Officer, or a member of the University Panel on Sexual Harassment. A list of

current panelists is available in Appendix E of *FACETS*, the University student handbook, and in the Office of Equal Opportunity and Affirmative Action, 402 Low Memorial Library or 101 Bard Hall.

The University's Discrimination Grievance Procedure may be used to redress sexual harassment complaints against students, faculty, or staff. The Sexual Misconduct alternative procedure is available only for students' complaints of physical sexual assault against other students.

Sexual harassment is particularly reprehensible in an academic community where Columbia's institutional integrity can be threatened by misuse of authority, sexual coercion, or intimidation of students. Following federal guidelines, Columbia University has adopted the following formal policy on sexual harassment.

Policy Statement on Sexual Harassment

Federal law, including Title VII of the Civil Rights Act of 1964, provides that it shall be unlawful discriminatory practice for any employer, because of the sex of any person, to discharge without just cause, to refuse to hire, or otherwise to discriminate against that person with respect to any matter directly or indirectly related to employment. Harassment of any employee on the basis of sex violates this federal law.

To help clarify what is unlawful sexual harassment the Federal Equal Employment Opportunity Commission (EEOC) has issued Guidelines on the subject. While the EEOC Title VII Guidelines apply only to faculty and other employees, Title IX, administered by the U.S. Education Department's Office for Civil Rights (OCR), also protects students from sexual harassment. Accordingly, the University prohibits sexual harassment of any member of the Columbia community, whether such harassment is aimed at students, faculty, or other employees, and violators will be subject to disciplinary action. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature will constitute sexual harassment when:

1. submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment;
2. submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or,
3. such conduct has the purpose or effect of unreasonably interfering with an individual's academic or work performance or creating an intimidating, hostile, or offensive academic or working environment.

Any person who believes that he or she is being sexually harassed may choose to seek a resolution of the problem through discussion with the person directly concerned. If this does not resolve the matter, or if there is a reluctance to deal directly with the person involved, the problem should then be brought to the attention of a member of the University Panel on Sexual Harassment. Advice may also be sought from the Office of Equal Opportunity and Affirmative Action, 402 Low Memorial Library or 101 Bard Hall, (212) 854-5511, or the Ombuds Office, 402 Hamilton Hall or 101 Bard Hall, (212) 854-1234. If these steps do not resolve the problem, the applicable University grievance procedure should be used. The University Discrimination Grievance Procedure is available if no other University grievance procedure is specifically applicable. No one at the University may retaliate in any way against a person who makes a claim of sexual harassment.

Charge of the University Panel on Sexual Harassment

The Columbia Panel on Sexual Harassment is composed of trusted, accessible, and sympathetic members of the University community who act as informal mediators. Their goal is the protection and counsel of any member of the University who is made to feel personally pressured or uncomfortable because of the behavior of another University member. Members of the Panel provide a safe, impartial, nonadversarial setting in which the problem can be considered or solved through confidential counseling and, when requested, mediation between the complainant and the alleged harasser. The Panel thus provides guidance and protection for the accused as well, identifying false or mistaken accusations, misunderstandings, or unconscious behavior. Panel members are also a link through

which the University can take account of, and take appropriate action against, those on campus who are behaving illegally. The Panel on Sexual Harassment is a timely, protective, and compassionate arm of the University, one that not only sensitizes and educates the University community but also demonstrates the University's commitment to fair treatment of all its members.

Panel Membership List

Names and contact information for members of the Columbia Panel on Sexual Harassment can be found in Appendix E of *FACETS*, the University student handbook.

Sexual Misconduct Policy and Alternative Procedure

On April 27, 1995, the University Senate adopted a Sexual Misconduct Policy and grievance procedure that can be used as an alternative to traditional Dean's Discipline. The Sexual Misconduct Policy applies to students in all schools on the Morningside campus, all schools on the Health Sciences campus, Barnard College, and Teachers College. The alternative disciplinary procedure applies to these same groups (through April 2000, unless extended), with the exception of the Law School. The policy prohibits sexual assault of one student against another student. A comprehensive program to address the issue has also been developed. Copies of the policy and alternative procedure are available through Columbia's Office of Equal Opportunity and Affirmative Action, 402 Low Memorial Library or 101 Bard Hall; mailing address: Mail Code 4333, 535 West 116th Street, New York, NY 10027; telephone: (212) 854-5511; fax: (212) 854-1368. A brief summary description of the policy, procedure, and program follows.

POLICY

Columbia University's Policy defines sexual misconduct as nonconsensual, intentional physical contact with a person's genitals, buttocks, and/or breasts. Lack of consent may be inferred from the use of force, coercion, physical intimidation, or advantage gained by the victim's mental and/or physical impairment or incapacity, of which the perpetrator was, or should have been, aware.

ALTERNATIVE PROCEDURE

The alternative procedure may be chosen in lieu of traditional Dean's Discipline, Columbia's sexual harassment procedure, or informal internal means of mediated resolution, by a student who alleges he or she has been the victim of sexual assault in violation of the University's policy. It can be initiated by contacting a Gatekeeper or the Associate Provost for Equal Opportunity and Affirmative Action and filing a complaint. If the established criteria are met and the situation is not otherwise resolved, a hearing may be convened before a three-member hearing panel consisting of one student, one faculty member, and one administrator. The complainant and the accused will be asked to provide information to the panel and, along with other information made available, it will be used to make a determination of guilt or innocence and any disciplinary action deemed warranted. The determination is sent as a recommendation to the Dean of Students of the accused's school, whose decision is final. There are appeal avenues at various stages of the procedure available to the complainant and the accused.

HEARING PANELISTS

Hearing Panelists are selected by the Associate Provost from a pool of students, faculty members, and officers of administration. None of the panelists will be from the school/department of the complainant or accused or closely affiliated with either party.

GATEKEEPERS

Twelve Associate or Assistant Deans have been appointed and trained to provide information about the policy and alternative procedure as well as

other options for dealing with a sexual assault. They can also receive complaints for mediation, investigation, and formal or informal resolution. Any one of the Gatekeepers may be contacted for information or advice or to report an incident of sexual misconduct. Gatekeepers cannot accept complaints by or against students in their own schools.

For a list of current Gatekeepers or for additional information, please contact the Office of Equal Opportunity and Affirmative Action, (212) 854-5511.

Romantic Relationship Advisory Statement

Faculty and staff members are cautioned that consensual romantic relationships with student members of the University community, while not expressly prohibited, can prove problematic. A faculty or staff member involved in such a relationship with a student is expected to remove him/herself from academic or professional decisions concerning the student. The Provost has, however, authorized some departments to adopt more restrictive policies. Individuals with questions about the position of their department are encouraged to raise them with their department head.

Should a romantic relationship with a student lead to a charge of sexual harassment against a faculty or staff member, the University will pursue it in accordance with its Sexual Harassment Policy and applicable grievance procedure. Questions about this Advisory Statement may be directed to Associate Provost Beth Wilson, Office of Equal Opportunity and Affirmative Action, 402 Low Memorial Library or 101 Bard Hall, (212) 854-5511. For the complete statement, please see Appendix F of *FACETS*, the University student handbook.

Campus Security

Located in New York City, Columbia University offers the advantages and disadvantages of life in a major metropolitan area, and Columbia has made the safety and well-being of members of its community—more than 19,000 students and 13,500 staff and faculty—a top priority.

Crime prevention is a major focus of the University Security Department. Safety and security information and training is continuously provided to students, staff, and faculty through presentations to campus groups and organizations, pamphlets, bulletins, crime alerts, and through the University student handbook, *FACETS*.

All Columbia campuses and their environs are patrolled by motorized and foot patrols that are coordinated with neighborhood security organizations as well as the security departments of New York Presbyterian Hospital and other affiliated institutions. The department also maintains an excellent liaison with the local police precincts. The Health Sciences Security Department provides an escort service within the Columbia Presbyterian Center area. A shuttle service is also available during stated hours between the Health Sciences and Morningside campuses.

The Health Sciences Security Office is located at 650 West 168th Street, New York, NY 10032; telephone: (212) 305-8100. The Morningside Heights Security Office is at 111 Low Library, 535 West 116th Street, New York, NY 10027; telephone: (212) 854-2796; emergency number: (212) 854-5555.

Columbia's annual campus security report, "Columbia University Campus Safety and Security," which includes a statistical summary of campus crimes that are reported, is made available to prospective and current students through admissions offices.

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APPLICATION INSTRUCTIONS

Application Deadlines:

FALL (September) ADMISSION MARCH 15

*Spring (January) Admission.....October 1

Summer (May) Admission February 15

Executive M.P.H. Program

in Health Services Management June 15

A limited number of openings may be available after these dates.

*Only programs in Biostatistics, Environmental Health Sciences, and General Public Health admit students to begin studies in the spring term.

International students who need visas, and applicants who wish to be considered for **financial aid**, are urged to apply well before these dates. Do not wait for admissions decision to submit financial aid documents.

Dual degree: Applicants seeking admission to dual degree studies must apply **separately** to the two collaborating schools and must meet the admissions requirements of each. Except where otherwise noted in the section of the Bulletin "Degree Requirements: Dual Degrees," students may apply to both schools at the same time, or may apply to the second school after admission to the first school.

EARLY APPLICATION IS ALWAYS ADVISABLE. ONLY COMPLETE APPLICATIONS WILL BE REVIEWED.
MOST ADMISSIONS DECISIONS FOR FALL ARE ANNOUNCED FOLLOWING THE MARCH 15 DEADLINE.

APPLICATION OPTIONS

NEW—OPTION I: Online Application

Complete application items 1, 3, and 5 (from Checklist below) through our Web site. Submit the remaining application materials from the Checklist through U.S. mail. If you choose electronic transmission it will be completely secure and reliable, with guaranteed confidentiality and privacy of your personal data. Full instructions at: <http://www.columbia.edu/> or <http://cpmnet.columbia.edu/dept/sph/>.

OPTION II: Paper Application

Use the forms, envelopes, and postcard contained in this Bulletin, and the Checklist below to guide you through the process. When all of your application materials are assembled, send them in one package. We will use your self-addressed postcard to acknowledge that we have received your application. In addition, you can check our receipt of your application documents through *Admissions Online* <http://www.columbia.edu/> or <http://cpmnet.columbia.edu/dept/sph/>.

APPLICATION CHECKLIST

Applicants should assemble Items 1–6 and submit these documents in *one* envelope to the Office of Admissions.

- ☐ 1. **Application Cover Sheet**
- ☐ ☐ 2. **Official Transcripts** from all undergraduate and graduate schools attended
- ☐ 3. **Personal Statement** for Division/program of choice (Item 15 on the Application Cover Sheet)
- ☐ ☐ ☐ 4. **Letters of Recommendation**, signed and sealed, from three (3) individuals familiar with your professional and/or academic work (References may be sent to the School directly if the referees wish, but your application can be handled in a more efficient and timely manner if all materials arrive at the Admissions Office in a single packet.)
- ☐ 5. **Application Fee (nonrefundable)** of U.S. \$60 (money order or check payable to "Columbia University")
- ☐ 6. **Return Postcard** (provided), self-addressed

To be forwarded directly to the School from Educational Testing Service:

- ☐ 7. **Graduate Record Examination (GRE)** General Test Scores
Public Health Institutional Code: 2159; Department Code: 0616
(With written request, MCAT, LSAT, or DAT may be considered in place of GRE.)
- ☐ 8. International students must also submit **TOEFL** scores (**School Code: 2159; Department Code: 0616**)

APPLICATION COVER SHEET

TYPE
OR
PRINT

THE JOSEPH L. MAILMAN SCHOOL OF PUBLIC HEALTH OF COLUMBIA UNIVERSITY

Mailing Address: Office of Admissions, 600 West 168th Street, New York, NY 10032

Office Location and Express Mail Address: 617 West 168th Street, Room 3-327

Telephone: (212) 305-3927 **Fax:** (212) 305-6450



APPLICATION FOR CLASS BEGINNING: ☐ September 200__ ☐ January 200__ ☐ May 200__ ☐ Full time ☐ Part time

1. MR.____ MS.____ DR.____
last name first middle previous surname

U.S. SOCIAL SECURITY # _____ 2. Date of birth ____/____/____ (optional) 3. ☐ Male ☐ Female
month day yr

4. ADDRESS (Indicate with an x where you wish correspondence sent, and phone preference.)

Phone numbers:

☐ PERMANENT _____
street city state zip code

☐ Day _____

☐ Evening _____

☐ CURRENT _____
street city state zip code

☐ Day _____

☐ Evening _____

UNTIL ____/____/____
month day yr

E-MAIL _____

5. COUNTRY OF CITIZENSHIP _____ Country code* _____ Citizenship code* _____

*Enter from "Code Lists" in this section.

International students: Will you need an application for a visa certificate for an F-1 or J-1 student visa? ☐ Yes ☐ No

6. Ethnic Origin (optional)—The U.S. Department of Education requires the University to report on the racial and ethnic composition of its student enrollment. However, self-identification is entirely voluntary. Check one:

☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other: _____

PROGRAM PREFERENCE Degree and program to which you are seeking admission. Check "Academic Programs" section of this Bulletin for appropriate combination of degree and concentration:

7. DEGREE (check one):

SINGLE DEGREE:

- ☐ MASTER OF PUBLIC HEALTH (MPH)
- ☐ MASTER OF SCIENCE (MS)
- ☐ DOCTOR OF PUBLIC HEALTH (DrPH)
- ☐ Special (Nondegree)

DUAL DEGREE with a cooperating Columbia school:†

- ☐ MPH/MD
- ☐ MPH/DDS
- ☐ MS-HPM/MD
- ☐ MS-HPM/DDS
- ☐ MPH/MS-Nursing
- ☐ MPH/MS-Occupational Therapy
- ☐ MPH/MBA-Business
- ☐ MPH/MIA-International Affairs
- ☐ MPH/MPA-Public Affairs
- ☐ MPH/MS-Social Work
- ☐ MPH/MS-Urban Planning

† your status at the cooperating school:

- ____ accepted
- ____ accepted and enrolled
- ____ pending admissions review
- ____ application not yet submitted

(Ph.D. applicants: apply directly to Graduate School of Arts and Sciences using their application forms—see page 77 "Ph.D. Degree")

8. DIVISION/PROGRAM (check first choice; use "A" for second choice):

☐ BIOSTATISTICS:

- ☐ Theory and Methods
- ☐ Clinical Research Methods
- ☐ Patient Oriented Research

☐ ENVIRONMENTAL HEALTH SCIENCES:

- ☐ General Environmental Health
- ☐ Occupational Medicine Residency
- ☐ Toxicology
- ☐ Medical/Health Physics

☐ EPIDEMIOLOGY

☐ GENERAL PUBLIC HEALTH (restricted admission: see "Academic Programs")

☐ HEALTH POLICY AND MANAGEMENT:

- ☐ Management*
- ☐ Policy*
- ☐ Effectiveness and Outcomes Research*
- ☐ Executive MPH in Health Services Management**

*full time only **part time (weekend)

☐ POPULATION AND FAMILY HEALTH

- ☐ Reproductive, Adolescent, and Child Health
- ☐ Forced Migration and Health

☐ SOCIOMEDICAL SCIENCES:

- ☐ Research Track
- ☐ Health Promotion/Disease Prevention Day Program
- ☐ Health Promotion/Disease Prevention Evening Program
- ☐ Distance Education HP/DP (restricted to DOH)
- ☐ History of Public Health and Medicine
- ☐ Aging and Public Health

FOR OFFICE USE ONLY

DATE

ACTION

DEGREE/CONCENTRATION

ADVISOR

9. SCHOOLS ATTENDED

List in reverse chronological order, college, university, graduate, and professional schools you have attended. For each school attended, enter the School Code (enter from "Code Lists" in this section) and submit a transcript for each school listed. Attach a separate page if you have more than three entries.

SCHOOL CODE	SCHOOL NAME	LOCATION	DATES ATTENDED			MAJOR	GRADE POINT AVERAGE
			FROM MO. YR.	TO MO. YR.	DEGREE		

10. Professional licenses (include dates and states) _____

11. List standardized exams you did/will take and scores if known. Official scores should be sent directly to Admissions Office by the testing service(s).

Exam	Date	Total Score	Verbal	Quantitative	Analytical
GRE	_____	_____	_____	_____	_____
TOEFL	_____	_____	_____	_____	_____
Other (Specify) _____	_____	_____	_____	_____	_____

WORK EXPERIENCE

12. How many years of full-time work experience will you have, *not* including summer and part-time positions, by your anticipated enrollment at the Mailman School of Public Health? _____

13. List work experience, starting with most recent position. (Attach additional sheets if necessary.) ***This section must be completed; a resume or curriculum vitae may be attached, but cannot be substituted for the information requested below.***

Check if health-related	Name and Address of Employer	Job Title and Description of Major Duties	Dates of Employment	Full Time or Part Time
☐				
☐				
☐				

14. REFERENCES Please arrange to have letters of recommendation sent to you in signed, sealed envelopes by three (3) individuals with recent knowledge of your abilities in professional work and responsibilities, and/or academic performance. See instructions on "Letter of Recommendation" form. List references here:

Name	Position/Department	Organization, City/State
_____	_____	_____
_____	_____	_____
_____	_____	_____

15. PERSONAL STATEMENT Please attach a typed (double spaced) statement of approximately 500 words describing your interest in the area(s) of concentration specified, relationship of prior education and experience to the area of concentration, and career objectives. Doctoral applicants should state their research interests. (Please be sure to include your name on your personal statement.)

16. APPLICATION FEE Please enclose nonrefundable fee of U.S. \$60 (check or money order payable to "Columbia University") required for processing.

17. Will you be applying for financial aid? ☐ Yes ☐ No
Be sure to read instructions in the Bulletin on "Financial Aid." Do not wait for a response on admission.

18. Where did you learn of this program? (Check all that apply.)
☐ Internet ☐ Advertisement ☐ Our alumni ☐ Our students ☐ Employer/colleague ☐ Your school ☐ Other: _____

Signature: _____ Date: _____

THE JOSEPH L. MAILMAN SCHOOL OF PUBLIC HEALTH OF COLUMBIA UNIVERSITY
600 West 168th Street, New York, NY 10032

Letter of Recommendation

I. To the applicant:

This form is to be given to a person familiar with your academic and/or professional qualifications. (Please refer to the instructions for completing the application for admission in the Application Procedures section of the Bulletin before designating your reference.)

Applicant Mr.____ Ms.____ Dr.____
Last Name First Middle

Address _____

Under the Buckley Amendment, students at Columbia University are permitted to see their academic records under certain conditions. I hereby waive ☐ [retain ☐] the rights thus granted me to see this letter of recommendation should I become a student at the Mailman School of Public Health.

Signature of Applicant _____ Date _____

II. To _____
(Applicant to fill in name of person providing reference)

The above-named person is applying for admission to the Mailman School of Public Health of Columbia University and has given your name as a reference. Would you please comment on the applicant's major strengths and weaknesses with regard to graduate study and a career in public health. If you have known the applicant as an employee of your organization, please include an evaluation of his or her job performance. Please supply any additional information that might help the Admissions Committee in considering the applicant and return this recommendation form to the applicant in an envelope with your signature across the seal. The applicant will then submit the sealed, signed envelope as part of the completed application to the Mailman School of Public Health.

(continue on reverse side if necessary)

Signature _____

Position _____

Department _____

Organization _____

Date _____

Address _____

THE JOSEPH L. MAILMAN SCHOOL OF PUBLIC HEALTH OF COLUMBIA UNIVERSITY
600 West 168th Street, New York, NY 10032

Letter of Recommendation

I. To the applicant:

This form is to be given to a person familiar with your academic and/or professional qualifications. (Please refer to the instructions for completing the application for admission in the Application Procedures section of the Bulletin before designating your reference.)

Applicant Mr.____ Ms.____ Dr.____
Last Name First Middle

Address _____

Under the Buckley Amendment, students at Columbia University are permitted to see their academic records under certain conditions. I hereby waive ☐ [retain ☐] the rights thus granted me to see this letter of recommendation should I become a student at the Mailman School of Public Health.

Signature of Applicant

Date

II. To _____
(Applicant to fill in name of person providing reference)

The above-named person is applying for admission to the Mailman School of Public Health of Columbia University and has given your name as a reference. Would you please comment on the applicant's major strengths and weaknesses with regard to graduate study and a career in public health. If you have known the applicant as an employee of your organization, please include an evaluation of his or her job performance. Please supply any additional information that might help the Admissions Committee in considering the applicant and return this recommendation form to the applicant in an envelope with your signature across the seal. The applicant will then submit the sealed, signed envelope as part of the completed application to the Mailman School of Public Health.

(continue on reverse side if necessary)

Signature _____

Position _____

Department _____

Organization _____

Date _____

Address _____

CODE LISTS

Citizenship Codes

FR	PERMANENT RESIDENT OF THE U.S. (GREEN CARD HOLDER)
ZI	FOREIGN STUDENT
US	U.S. CITIZEN
N1	OTHER

Country Codes

AFG	AFGHANISTAN
ALB	ALBANIA
ALG	ALGERIA
AND	ANDORRA
ANG	ANGOLA
ANT	ANTIGUA AND BARBUDA
ARG	ARGENTINA
ARM	ARMENIA
AST	AUSTRALIA
AUS	AUSTRIA
AZE	AZERBAIJAN
AZR	AZORES
BHM	BAHAMAS
BAH	BAHRAIN
BAN	BANGLADESH
BRG	BARBADOS
BLI	BARLUM
BLZ	BELIZE
BEN	BENIN
BER	BERMUDA
BHU	BRUTAN
BOL	BOLIVIA
BOS	BOSNIA
BOT	BOTSWANA
BRA	BRAZIL
BVI	BRITISH VIRGIN ISLANDS
BWT	BRITISH WEST INDIES
BRU	BRUNEI
BUL	BULGARIA
BKE	BURKINA FASO
BUR	BURUNDI
BRD	BURUNDI
BYE	BYELARUS
CMR	CAMEROON
CAN	CANADA
CAR	CENTRAL AFRICAN REPUBLIC
CHD	CHAD
CHI	CHILE
CHN	CHINA
CLB	COLOMBIA
CGO	CONGO
CSR	COSTA RICA
CRO	CROATIA
CUB	CUBA
CYP	CYPRUS
CZR	CZECH REPUBLIC
CZE	CZECHOSLOVAKIA
DEN	DENMARK
DUT	DUTCH
DCA	DOMINICA
DOM	DOMINICAN REPUBLIC
ECU	ECUADOR
EGY	EGYPT
ELS	EL SALVADOR
ENG	ENGLAND
EQG	EQUATORIAL GUINEA
EST	ESTONIA
ETH	ETHIOPIA
FIL	FIJI
FIN	FINLAND
FRA	FRANCE
FGU	FRENCH GUIANA
PGI	FRENCH POLYNESIA
GAB	GABON
GAM	GAMBIA
GZR	GAZA STRIP
GEO	GEORGIA
GER	GERMANY
GHA	GHANA
GIB	GIBRALTAR
GRG	GREECE
GRV	GREENLAND
GRE	GRENADE
GUD	GUADELOUPE
GUA	GUATEMALA
GUL	GUYANA
GUB	GUINEA-BISSAU
GUY	GUYANA
HAI	HAITI
HND	HONDURAS
HKG	HONG KONG
HUN	HUNGARY
ICE	ICELAND
IND	INDIA
INC	INDONESIA
IRN	IRAN
IRG	IRAQ
IRE	IRELAND
ISR	ISRAEL
ITL	ITALY
IWO	IVORY COAST
JAM	JAMAICA
JPN	JAPAN
JDN	JORDAN
KMP	KAMPUCHEA
KAZ	KAZAKHSTAN
KEN	KENYA
KHI	KIRIBATI ISLANDS
KUW	KUWAIT
KYR	KYRGYZSTAN
LAO	LAOS
LAT	LATVIA
LEB	LEBANON
LES	LESOTHO
LIB	LIBERIA
LIA	LIBYA
LCH	LICHTENSTEIN
LIT	LITHUANIA
LUX	LUXEMBOURG
MAC	MACAU
MAD	MACEDONIA
MAD	MADAGASCAR
MAL	MALAGASY REPUBLIC
MAW	MALAWI
MAY	MALAYSIA
MDV	MALEDIVES
MLI	MALI
MAA	MALTA
MAI	MARIANA ISLANDS
MAR	MARTINIQUE
MAT	MAURITIA
MAU	MAURITIUS
MEX	MEXICO
MID	MIDWAY ISLANDS
MOI	MOLDOVA
MON	MONACO
MOG	MONGOLIA
MOR	MOROCCO
MOZ	MOZAMBIQUE
NAM	NAMIBIA
NAP	NEPAL
NTH	NETHERLANDS
NEA	NETHERLANDS ANTILLES
NCI	NEW CALEDONIA
NZL	NEW ZEALAND
NIC	NICARAGUA
NGI	NIGER
NGR	NIGERIA
NKO	NORTH KOREA
NRI	NORTHERN IRELAND
NOR	NORWAY
OMN	OMAN
OTH	OTHER
PAK	PAKISTAN
PAN	PANAMA
PAP	PAPUA NEW GUINEA
PAP	PARAGUAY
PER	PERU
PHI	PHILIPPINES
POL	POLAND
POR	PORTUGAL
QAT	QATAR
ROM	ROMANIA
RUS	RUSSIA
RWA	RWANDA
SAU	SAUDI ARABIA
SCO	SCOTLAND
SEN	SENEGAL
SEI	SIERRA LEONE
SLE	SLEKIM
SIN	SINGAPORE
SLR	SLOVAKIA
SLO	SLOVENIA
SIM	SOLOMON ISLANDS
SOM	SOMALIA
SOF	SOUTH AFRICA
SKO	SOUTH KOREA
SOV	SOVIET UNION
SPN	SPAIN
SRL	SRI LANKA
SPR	ST PIERRE & MIQUELON
STL	STATELESS
SUD	SUDAN
SUR	SURINAME
SWZ	SWAZILAND
SWD	SWEDEN
SWT	SWITZERLAND
SYR	SYRIA
TWN	TAIWAN
TAJ	TAJIKISTAN
TNZ	TANZANIA
THL	THAILAND
TGO	TOGO
TNT	TRINIDAD & TOBAGO
TUN	TUNISIA
TRK	TURKEY
TUR	TURKMEINISTAN
UGA	UGANDA
UKR	UKRAINE
UAE	UNITED ARAB EMIRATES
UKD	UNITED KINGDOM
USA	UNITED STATES
FOR	UNKNOWN FOREIGN
URU	URUGUAY
UZB	UZBEKISTAN
VAN	VANUATU
VEN	VENEZUELA
VIE	VIETNAM
WAL	WALES
WSM	WESTERN SAMOA
YEM	YEMEN
YUG	YUGOSLAVIA
ZAI	ZAIRE

ZAM	ZAMBIA
ZIM	ZIMBABWE

School Codes

ALABAMA	
1003	ALABAMA AGRIC MECH U
1054	ALABAMA CHRSTN COLL
1006	ALABAMA ST UNIV
1005	AUBURN UNIV
3231	BESSEMER ST TECH COL
1064	BIRMINGHAM STRN COLL
1999	CONCORDIA COLLEGE
1213	ENTERPRISE ST JR COL
1262	GADSDEN ST JR COLLEGE
1264	GEO C WALLS S CC DOT
3146	GEO C WALLS S CC SEL
1303	HUNTINGDON COLL
1939	J H FAULKNER ST JR C
1736	JACKSONVILLE ST UNIV
1355	JEFFERSON DAVIS ST JC
1352	JEFFERSON ST JR COLL
1356	JOHN C CALHOUN ST CC
1349	JUDSON COLLEGE AL
1429	L B WALLACE ST JR C
1933	LAWSON ST C C
1737	LYVINGSTON UNIV
1447	MARION MILITARY INST
1468	MILES COLL
1515	MOBILE COLL
1576	NORTHEAST ALA ST J C
1386	OAKWOOD COLL
1644	PATRICK HENRY ST J C
1641	PROVIDENCE HOSPITAL
9287	RED DEER COLLEGE
1737	R D BISHOP ST JR COLL
1302	SAMFORD UNIVERSITY
1792	SELMA UNIV
3338	SHELTON STATE C C
1721	SNEAD ST JR COLL
1723	SOUTHERN BIBLE COL
1728	SOUTHERN UNIV ST J C
1733	SPRING HILL COLL
1739	STILLMAN COLL
1800	TALLADEGA COLL
1798	TROY ST UNIV MONTGOM
1738	TROY STATE UNIV TROY
1813	TUSKEGEE INSTITUTE
1962	UN AL PHYS ASSIST PR
1856	UNIV ALABAMA BRMNGHM
1854	UNIV ALABAMA HUNTSVL
1830	UNIV ALABAMA UNIV
1004	UNIV MONTREALLO
1735	UNIV NORTH ALABAMA
1880	UNIV SOUTH ALABAMA
ALASKA	
4201	ALASKA PACIFIC UNIV
4202	ANCHORAGE COMM COLL
4202	CHEIKHI CMY COLL
4373	KENAI PENINSULA C C
4370	KETCHIKAN C C
4372	KODIAK CMNTY COLL
4370	KUSKOKWIM CMNTY COLL
4399	MATANUSKA-SUSTINA CC
4545	NORTHWEST CMY COL AK
4636	PRINCE WM SOUND C C
4742	SHELDON JACKSON COLL
4374	SITKA CMY COLL
4829	TANANA VLY COMM COLL
4896	UNIV ALASKA ANCHORAGE
4866	UNIV ALASKA FAIRBANKS
4897	UNIV ALASKA JUNEAU
AMERICAN SAMOA	
0020	AMER SAMOA CMY CLG
ARIZONA	
4225	ARIZONA ST U-PSAP
4007	ARIZONA ST UNIV
4013	ARIZONA WSTRN COLL
4122	CENTRAL ARIZONA COLL
4097	COCHISE COLL
4297	EASTRN ARIZONA COLL
4305	EMBRY RIDGE AERON U
4338	GLENDALE C C AZ
4331	GRAND CANYON COLL
4513	MESA C C
4550	NAVAJO CMY COLL
4006	NORTHERN ARIZONA UNIV
4606	PHOENIX COLL
4623	PIMA COMMUNITY COLL
4755	SCOTTSDALE C C
4734	SOUTH MOUNTAIN C C
4736	SOUTHWEST BAPT BIBLE
4774	SWEETWATER COLLEGE
4832	UNIVERSITY ARIZONA
4996	YAVAPAI COLL
ARKANSAS	
6033	ARKANSAS CHRISTIAN C
6009	ARKANSAS COLLEGE
6011	ARKANSAS ST UNIV
6010	ARKANSAS TECH UNIV
6028	ARKANSAS VALLEY V T
6111	COLL OZARKS
6131	CROWLEYS RIDGE COLL
6243	GARLAND CO C C
6267	HARDING UNIV
6272	HENDERSON ST UNIV
6273	HENDRIX COLL
6321	JOHN BROWN UNIV
6549	OUACHITA BAPTIST UNIV
6578	PHILADELPHIA SMTH COLL
6658	PHILLIPS CMY C C
6649	SHORTER COLL AR
6704	SOUTHERN ARK U TECH B
6661	SOUTHERN ARKANSAS UNIV
6658	SOUTHERN BAPTIST COLL
6866	SOUTHERN ARKANSASNTT
6007	UNIV ARKANSAS MONTCL
6004	UNIV ARKANSAS PN BLF
6010	UNIV CNTRAL ARKANSAS
6102	UNIV OF ARK L R
6220	WESTARK C C
CALIFORNIA	
4002	ALLAN HANCOCK COLL
4010	AMBASSADOR COLL CA
4004	AMERICAN RIVER COLL
4005	ANTELOPE VALLEY COLL
4210	ANTIOCH U WEST SN FN
4008	ARMSTRONG COLL
4009	ART CTR COLL DESIGN
4056	AZUSA PACIFIC UNIV
4595	BAKERSFIELD COLL
4020	BARSTOW CMY COLLEGE
4234	BAUDER COLLEGE CA
4021	BETHANY BIBLE COLL
4011	BOLA UNIVERSITY
4228	BROOKS INSTITUTE
4226	BUTTE COMMUNITY COLL
4713	CA ST COL STANISLAUS
4084	CABRILLO COLL
4038	CAL POLY SLU
4071	CAL ST U SACRAMENTO
4048	CAL STATE UNIV CHICO
4011	CAL STATE UNIV HAYWD
4094	CALIF BAPTIST COLL
4251	CALIF BIBLE COLL
4031	CALIF C ARTS CRAFTS
4123	CALIF CHRISTIAN COLL
4066	CALIF HOSP MED CNTR
4049	CALIF INSTITUTE ARTS
4034	CALIF INSTITUTE TECH
4035	CALIF LUTHERAN COLL
4088	CALIF MARITIME ACAD
4110	CALIF ST COLL BAKERS
4082	CALIF ST POLY UOM
4389	CALIF ST ULIONG BCH
4399	CALIF ST U LOS ANGLS
4707	CALIF ST U NORTHRIDG
4038	CALIF ST UNIV DOM HL
4099	CALIF ST UNIV FERTN
4019	CANADA COLL
4083	CERRITOS COLL
4027	CERRIO GOSO CMY COLL
4746	CHABOT COLL
4045	CHAFFEY CMY COLL
4049	CHAPMAN COLL
4067	CHRIST COLL IRVINE
4150	CHRISTIAN HERITAGE C
4052	CITRUS COLL
4051	CITY COLL SAN FRNSCO
4054	CLAREMONT MCKENNA C
4095	CLARETIAN JR SEMINARY
4086	COLBY COLL CMY CLG
4157	COGSWELL COLLEGE
4018	COLL ALAMEDA
4161	COLL CANYONS
4095	COLL DESERT
4067	COLL MARIN
4063	COLL NOTRE DAME CA
4100	COLL OF THE SEQUOIAS
4070	COLL REDWOODS
4087	COLL SAN MATEO
4087	COLL SISKIYOU
4078	COLUMBIA COLLEGE
4108	COMPTON CMY COLL
4943	CONTRA COSTA COLL
4121	COSUMNES RIVER COLL
4126	CRAFTON HILLS COLL
4101	CUESTA CMY COLLEGE
4252	CUTAMACA COLLEGE
4104	CYPRESS COLL
4286	DE ANZA COLL
4282	DHARMA REALM UNIV
4295	DIBALO VALLEY COLL
4294	DOMINICAN C SN RAPAL
4296	DON BOSCO TECH INST
4548	EAST LOS ANGELES COLL
4502	EDISON TECH INST
4275	EL CAMINO COLL
4275	EMPIRE COLL
4273	EVERGREEN VALLEY COLL
4437	FASHION INST. OF DESIGN & MERCH.
4518	FEATHER RIVER COLL
4315	FOOTHILL COLL
4311	FRESNO CITY COLLEGE

5626	SOUTH GEORGIA COLL	1412	LOYOLA UNIV CHICAGO	1338	INDIANA UNIV GARY	6926	WARTBURG COLLEGE
5626	SOUTHERN TECH INST	1410	LUTHERAN DEACONS HSP	1337	INDIANA UNIV KOKOMO	6928	WESTMARK COLLEGE
5628	SPELMAN COLL	1520	MACCORMAC JR COLL	1314	INDIANA UNIV ALBANY	6930	WESTERN IOWA TECH C C
5671	SPAINSBORO ARV T SC	1435	MACMURRAY COLL	1194	INDIANA UNIV RICHMOND	6943	WILLIAM PENN COLL
5672	SPANGLER CO COMM COLL	1435	MALCOLM COLL	1339	INDIANA UNIV SOUTH BEND		
5795	TIFT COLL	1444	MALCOLM COLL	1286	INDIANA UNIV TEC COLMB		
5795	TIPCOA FALLS COLLEGE	1438	MALLINCKRODT COLL	1286	INDIANA UNIV TEC EVANS		
5798	TRUETT MCCONNELL COLL	1456	MCKENDREE COLL	1278	INDIANA UNIV TEC FTWAY		
5800	UNIV GEORGIA ATHENS	1503	METHUEN COLLEGE	1281	INDIANA UNIV TEC GARY		
5826	UNIV GEORGIA ED CTR	3232	MICHAEL REESE HSP MD	1311	INDIANA UNIV TEC INDNP		
5855	VALDOSTA ST COLL	3259	MIDWEST C ENGINEERING	1329	INDIANA UNIV TEC KOKO		
5889	WAYCROSS JR COLL	1470	MILKIN UNIV	1282	INDIANA UNIV TEC LAFAY		
5895	WESLEYAN COLL	6092	MISSOURI INST TECH	1334	INDIANA UNIV TEC MADSN		
5900	WISCONSIN COLL	1484	MONMOUTH COLLEGE	1275	INDIANA UNIV TEC MUNC		
5900	WYUN-HARRIS COLLEGE	1486	MOODY BIBLE INST	1283	INDIANA UNIV TEC RICHM		
		1526	MORANIE VALLEY C C	1280	INDIANA UNIV TEC S BND		
		1269	MORRISON INST TECH	1273	INDIANA UNIV TEC SELL		
		1489	MORTON COLL	1284	INDIANA UNIV TEC TERRH		
9037	MICRONESIAN OCCUPATI	1493	MUNDELEIN COLLEGE	1330	INTRMNTL CRTY COLL BUS		
9059	UNIV GUAM	1567	NATIONAL C CHROPRIC	3218	LOCKYEAR COLLEGE		
		1624	NATIONAL COL ED CHGO	1416	LUTHERAN HOSPITAL		
		1551	NATIONAL COL ED EVAN	1440	MANCHESTER COLLEGE		
		1755	NILES COLL LOYOLA U	1442	MARIAN COLLEGE		
		1555	NORTH CNTRL COLL	1446	MARION COLLEGE		
		1556	NORTH PARK COLL	1518	MEMORIAL HOSPITAL		
		1559	NORTHERN ILLINOIS U	3140	MICHIANA COLL CMHCRC		
4106	BRIGHTMAN YOUNG U HI	1090	NORTHESTERN ILL UNV	1570	NORTHWOOD INST IN		
4124	WINNIS INST BUS COLL	1565	NORTHWESTERN UNIV	1608	OAKLAND CITY COLL BDF		
4145	CHAMPAINE UNIV HONLU	1553	NORTHWESTN U MED SCH	1585	OAKLAND CITY COLL		
4894	HAWAII COMM COLL	1583	NORTHWESTRN U DNTL H	1635	PARKVIEW MEMRL HOSP		
4951	HAWAII LOA COLL	1604	NORTHWESTRN U NURSING	7700	PROFESSIONAL CRT INST		
4951	HAWAII LOA COLL	1573	OAKTON CTY COLL	1638	PURDUE UNIV CALUMET		
4952	HAWAII PACIFIC COLL	1605	OKLAHOMA INSTUTE TECH	1637	PURDUE UNIV FT WAYNE		
4950	HONOLULU CMTY COLL	1584	OLIVE-HARVEY COLL	1638	PURDUE UNIV W LAFAYE		
4962	INTRNATL COLL	1596	OLIVET NAZARENE COLL	1640	PURDUE UNIV WESTVILLE		
4977	KAPOLIANI CMTY COLL	1616	ORANGE BIBLE COLLEGE	1668	ROSE-HULMAN INST		
4978	KAUAI CMTY COLL	1598	OUR LADY OF THE LAZAR	1761	ST ELIZABETH HOSPITL		
4410	LEWARD CMTY COLL	1600	PACIFIC COLLEGE	1693	ST FRANCIS COLL		
4930	MAUI COMMUNITY COLLEGE	1621	PARKS COLL ST LOUIS	1697	ST JOSEPHS COLLEGE		
4911	U S INTERNLT UNIV HI	1677	PRAIRIE ST COLL	1760	ST JOSEPHS HOSPITAL		
4869	UNIV HAWAII HIGL CMP	1630	PRINCIPAL COLL	1704	ST MARY WOODS COLL		
4867	UNIV HAWAII MANOA	1645	QUINCY COLLEGE	1702	ST MARYS COLLEGE IN		
4976	WINWARD CMTY COLL	1659	RAVENSWOOD HSP MED C	1705	ST MEINRAD COLL		
		1673	REND LAKE COLL	1802	TAYLOR UNIV		
		1675	RICHARD J DALEY COLL	1811	TRT STATE UNIVERSITY		
		1675	RICHLAND CMTY COLL	1208	UNIV EVANSVILLE		
		1670	ROBERT MORRIS COLL	1841	UNIV NOTRE DAME		
		1674	ROCK VALLEY COLL	1873	VALPARAISO TECH INST		
		1665	ROCKFORD COLL	1874	VALPARAISO UNIVERSITY		
		1666	ROOSEVELT UNIV	1877	VINCENNES UNIV		
		1667	ROSBARY COLL	1895	WABASH COLLEGE		
		3263	RUSH UNIV C HLTH SCI				
		3262	RUSH UNIV COLL NURSG				
		1780	SALV VALLEY COLLEGE	6946	BRIAR CLIFF COLL		
		1713	SCHOOL ART INST CHGO	6947	BURENA VISTA COLL		
		1716	SHERWOOD MEDICAL SCH	6947	CENTRAL COLL IA		
		1717	SHIMER COLLEGE	6987	CENTRAL COLL IA		
		1759	SOUTHERN ILL U EDWRD	6099	CLARKE COLLEGE		
		1777	SOUTHESTRN ILL UNV	6100	CENTRAL COLY COLL IA		
		1726	SOUTHERN ILL UNV CAR	6101	COE COLLEGE		
		1128	SOUTHERN ILL UNV CA	6119	CONYTON COLL		
		1154	SPORN RIVER COLL	6177	DES MOINES A CC ANKN		
		1734	SPRINGFIELD COLL ILL	6044	DES MOINS AR CC BOON		
		1734	ST FRANCIS HSP EVAN	174	DIVINE WORD COLLEGE		
		1737	ST FRANCIS HSP PEOR	6171	DORTD COLL		
		1763	ST MARY NAZARETH HSP	6168	DRAKE UNIVERSITY		
		1708	ST XAVIER COLLEGE	6193	EDMUNDS CMTY COLL		
		1749	STATE CMTY COLL	6214	FAITH BAPTIST BIB C		
		1806	THORNTON COMM COLLEGE	6249	GRACELAND COLL		
		1820	TRINITY CHRISTIAN COLL	6251	GRAND VIEW COLL		
		1810	TRINITY COLL IL	6252	GRINNELL COLLEGE		
		1821	TRITON COLL	6288	HAWKEYE INST TECH		
		1111	TRUMAN COLLEGE	6312	INDIAN HILLS CC OTTM		
		1851	U OF ILLINOIS CHGO C	6083	INDIAN HILLS CC CENTRY		
		1895	UNIV ILLINOIS SPRG	6299	INDIAN HILLS CC HCFETS		
		1836	UNIV ILLINOIS URBANA	6185	IOWA CNTRL CC EAGLR		
		1832	UNIV OF CHICAGO	6195	IOWA CNTRL CC FTDIOG		
		1872	VANDERCOOK COLL MUS	6932	IOWA CNTRL CC WEB CY		
		1936	WABASH UNIV COLL	6217	IOWA LAKES CC EMNBS		
		1938	WALBURNSESE CMTY COLL	6196	IOWA LAKES CC ESTHRV		
		1927	WEST SUBURBAN HOSPTL	6306	IOWA STATE UNIV		
		1905	WESTERN ILLINOIS UNV	6308	IOWA WESLEYAN COLL		
		1905	WHEATON COLLEGE	6308	IOWA WSTRN CC CLARND		
		1925	WILBUR WRIGHT COLL	6302	IOWA WSTRN CC CNCLBL		
		1932	WILLIAM RNY HARPER C	6027	KIRKWOOD COLLEGE		
				6370	LAROS COLL		
				4975	OTHER COLL		
				4997	MAHARISHI INTL UNIV		
				6394	MARSHALLTOWN C C		
				6397	MARYCREST COLLEGE		
				6415	MORNINGSIDE COLL		
				6417	MOUNT MERCY COLL		
				6418	MOUNT ST CLARE COLL		
				6422	MUSCATINE CMTY COLL		
				6400	NORTH IOWA AREA C C		
				6504	NORTHWEST IA VOC SCH		
				6490	NORTHWESTERN COLL IA		
				6751	NORTHEAST IA TEC INST		
				6593	PALMER COLL CHROPRC		
				6650	SIMPSON COLL IA		
				6766	SIOUX EMPIRE COLL		
				6740	SOUTHEASTN CC SOUTH		
				6340	SOUTHEASTN CC NORTH		
				6048	SOUTHESTRN CC SOUTH		
				6122	SOUTHWESTN CMTY COLL		
				6430	SOUTHWESTN COLLEGE		
				6869	UNIV DUROQUE		
				6307	UNIV NTHRN IOWA		
				6681	UNIVERSITY OF IOWA		
				6885	UPPER IOWA UNIV		
				6694	VENNARD COLL		
				6925	WALDORF COLLEGE		

LOUISIANA

6082	CENTENARY COLL LA
6125	CHARITY HOSPITAL
6176	DELGADO COLL
6164	DILLARD UNIVERSITY
6233	FAITH BIBLE COLLEGE
6250	GRAMBLING ST UNIV
6373	LA ST UNIV BAT ROUC
6386	LA ST UNIV EUNICE
6355	LA ST UNIV SHREVEPR
6371	LOUISIANA COLL

6372 LOUISIANA TECH UNIV
6374 LOYOLA UNIV LA
6403 MCNEESE ST UNIV
6471 NEWCOMB COL TULANE U
6221 NICHOLLS ST UNIV
6482 NORTHEAST LA UNIV
6492 NORTHWESTRN ST UNIV
6000 O'LEARY HALL CROSS
6603 SOUTHERN UNIVERSITY
6556 SOUTHERN LA UNIV
6715 ST BERNARD PARISH CC
6689 ST JOSEPH SEMINARY C
6613 ST MARYS DOMINICAN C
6382 TULANE UNIV
6379 UNIV NEW ORLEANS
6372 UNIV SWSTRN LA
6975 XAVIER UNIV LA

MAINE

3030 BANGOR CMYTY COLL
3076 BATES COLLEGE
3114 BEAL COL
3089 BOWDOIN COL
3700 CASCO BAY COLLEGE
3302 CENTRAL MAINE WD CEN
3300 CENTRAL MAINE V T INS
3280 COLBY COL
3305 COLL ATLANTIC
3373 EASTERN MAINE WD CTR
3372 EASTERN MAINE VT INST
3440 HUSSON COL
3467 JOHN F KENNEDY COL
3475 KENNEBEC VILLY VT INS
3405 MAINE MARITIME ACAD
3552 MERCY HOSPITAL
3631 NORTHERN ME VOC T INS
3710 PORTLAND SCH OF ART
3555 SOUTHERN MAINE VT INS
3755 ST JOSEPHS COLL ME
3802 ST MARYS GENL HOSP
3903 THOMAS COLL
3906 U MAINE FREQUE ISLE
3925 UNIV COLLEGE
3018 UNIV MAINE AT ORONO
3929 UNIV MAINE AUGUSTA
3929 UNIV MAINE FARMINGTON
3551 UNIV MAINE FT KENT
3996 UNIV MAINE MACHAS
3753 UNIV NEW ENGLAND
3691 UNIV SOUTHERN MAINE
3961 WASHINGTON CO VT INT
3960 WESTBROOK COL

MARYLAND

5028 ALLEGANY CMYTY COLL
5019 ANNE ARUNDEL C C
5738 ANTIETAM BIBLE COL
5033 ANTIETAM UNIV MD
5696 ARLINGTON BIBLE COL
5401 BOWIE ST COL
5131 C C BALTIMORE HARBOR
5051 C C BALTIMORE LIBRTY
5101 CAPITOL INST TECH
5113 CATONSVILLE CMYTY COL
5091 CECIL CMYTY COLL
5144 CHARLES CO CMYTY COLL
5143 CHESAPEAKE COL
5114 COLL NOTRE DAME MD
5800 COLUMBIA UNION COL
5122 COPPIN ST COL
5176 DUNDALK CMYTY COLL
5176 EASTRN CHRISTIAN COL
5192 ESSEX CMYTY COLL
5230 FREDERICK CMYTY COLL
5402 FROSTBURG ST COLL
5279 GARRETT CMYTY COLL
5257 GOUGHEN COL
5290 HAGERSTOWN JR COL
5033 HARFORD CMYTY COLL
5296 HOOD COL
5308 HOWARD CMYTY COLL
5426 JENNS HOPKINS UNIV
5370 LOYOLA COL
5431 MACQUEEN GIBBS VILS
5436 MARYLAND GENRL HOSP
5399 MARYLAND INST C ART
5435 MONTGOMERY COL GMNT
5440 MONTGOMERY COLL ROCK
5414 MONTGOMERY COLL TAKO
5416 MORGAN ST UNIV
5421 MOUNT ST MARYS C MD
5434 OTTID JOHN'S HOPKINS U
5532 PEABODY INSTITUTE
5545 PRINCE GEORGES C C
5404 SALISBURY STATE
5598 ST JOHNS COL MD
5603 ST JOSEPH HOSPITAL
5602 ST MARYS COLLEGE MD
5401 ST MARYS SEM UNIV
5404 TOWSON STATE UNIV
5839 U S NAVAL ACADEMY
5834 UNION MEMORIAL HOSP
5810 UNIV BALTIMORE
5814 UNIV MARYLAND COL PK
5400 UNIV MARYLAND E SHR
5835 UNIV MD BALTIMORE CO
5856 VILLA JULIE COLL
5884 WASHINGTON BIBLE COL
5888 WASHINGTON COLLEGE
5988 WESTRN MARYLAND COLL

MASSACHUSETTS

3002 AMERICAN INTNL COLL
3003 AMHERST COLLEGE
3005 ANNA MARIA COL
3011 AQUINAS JR C MILTON
3013 AQUINAS JR C NEWTON
3077 ART INSTITUTE BOSTON
3099 ASSUMPTION COLLEGE
3010 ATLANTIC UNION COL
3075 BARSON COL
3078 BAY PATH JR COL
3120 BAY STATE JUNIOR CLG
3787 BAYSTATE WD CNTR
3482 BECKER JR C LISTR CM
3087 BECKER JR C LISTR CM
3096 BENTLEY COL
3107 BERKLEE COLL MUSIC
3105 BERRKSHIRE CHRSTN COLL
3102 BERRKSHIRE CMYTY COLL
3083 BOSTON COL
3084 BOSTON CONSV MUSIC
3085 BOSTON SCH OCC THRPY
3086 BOSTON STATE COL
3087 BOSTON UNIVERSITY
3091 BRADFORD COL
3092 BRANDEIS UNIV
3517 BRIDGEWATER ST COLL
3110 BRISTOL COMMUNITY COL
3112 BROCKTON HOSPITAL
3123 BUNKER HILL CMYTY COLL
3098 BURBANK HOSPITAL
3099 BURDETTH SCHOOL
3289 CAPE COD CMYTY COLL
3308 CENTRAL NEW ENGL COLS
3279 CHAMBERLAYNE JR COLL
3124 CLARK UNIV
3011 COLL HOLY CROSS
3283 COLL OUR LADY ELMS
3285 CURRY COLL
3352 DEAN JR COLL
3571 EAST COAST AERO TECH
3365 EASTRN NAUTINE COL
3367 EMERSON COL
3368 EMMANUEL COLL MA
3369 ENDICOTT COLL
3375 ESSEX AGRICULT INST
3391 FISHER JR COLLEGE
3518 FITCHBURG ST COLLEGE
3927 FORTSYTH SCH DENT HYG
3519 FRAMINGHAM STATE COL
3397 FRAMINGHAM UNION HSP
3394 FRANKLIN INST BOSTON
3417 GORDON COL
3420 GREENFIELD CMYTY COLL
3447 HAMPSHIRE COL
5454 HARVARD U KENNEDY S
3451 HARVARD UNIV-GRAS
3434 HARVARD-RADCLIFFE
3435 HERREW COL
3469 HELLENIC COLLEGE
3437 HOLYOKE CMYTY COLL
3473 KATHERINE GIBBS SCH
3287 LAUREL JR COL
3453 LAWRENCE GENERAL HSP
3488 LAWRENCE GENERAL HSP
3489 LEOMINSTER HOSPITAL
3483 LESLEY COLL
3487 LOWELL GENERAL HOSP
3414 M IT
3540 MALDEN HOSPITAL
3100 MARIAN CT JR CLG BUS
3548 MARY BROOKS SCHOOL
3294 MASS BAY CMYTY COLL
3512 MASS C PHILAL HTT SC
3516 MASS CMYTY COLL
3515 MASS MARITIME ACAD
3508 MASS STATE COLL SYST
3549 MASSACHUSETTS COLLY
3525 MERRIMACK COL
3554 MIDDLESEX C C MA
3529 MOUNT HOLYOKE COLL
3530 MOUNT IDA JR COL
3545 MOUNT WASHINGTON C C
3659 NEW ENG CONSV MUSIC
3671 NEW ENG DENNIS HOSP
3545 NEW ENG SCH ART DESN
3676 NEW ENGLASS BAPT HSP
3523 NEW ENGLAND C OPTOMETRY
3639 NEWBURY JUNIOR COL
3672 NEWTON WELLSLEY HOSP
3666 NICHOLS COLLEGE
3521 NORTH ADAMS ST COLL
3651 NORTH SHORE C C
3641 NORTHEAST INST INT D
3667 NORTHESTERN UNIV
3674 NORTHERN MASS COL
3697 PETER BERT BRIGHAM
3689 FINE MANOR COLLEGE
3713 QUINCY JR COLL
3714 QUINCYAMOND C C
3723 REGIS COL
3740 ROXBURY CMYTY COLLEGE
3522 SALT STATE COL
3779 SCH WORCER ART MUSEM
3794 SCHOOL OF FINE ART
3701 SIMMONS COLLEGE
3703 SIMONS ROCK OF BARD
3762 SMITH COLLEGE
3799 SPOWVILLE HOSPITAL
3763 SPRINGFIELD COLLEGE
3791 SPRINGFIELD TECH C C

3773 ST ELIZABETHS HOSP
3772 ST HYACINTH UNIV
3295 ST JOHNS SEM
3775 ST VINCENT HOSP NURS
3770 STONEHILL COL
3771 SUFOLK UNIV
3897 SWAIN SCH DESIGN
3390 TUFTS-FLETCHER SCH
3901 TUFTS UNIV JACKSON C
3917 UNIV MASS AMHERST
3924 UNIV MASS BOSTON
3786 UNIV MASS DARTMOUTH
3769 UNIV MASS STCKBR SCH
3911 UNIVERSITY OF LOWELL
3942 VESPER GEORGE SCH ART
3957 WELLESLEY COLLEGE
3998 WENTWORTH INST TECH
3962 WESTERN NEW ENGLAND
3523 WELFIED ST COLL
3963 WHEATON COLLEGE MA
3964 WHEELOCK COL
3965 WILLIAMS COLLEGE
3972 WORCESTER CITY HOSP
3976 WORCESTER INDUS TECH
3969 WORCESTER POLY INST
3524 WORCESTER ST COLL
3979 WORCESTER HAHNMANN HSP

MICHIGAN

1001 ADRIAN COL
1007 ALBION COL
1010 ALMA COL
1011 ALPENA CMYTY COLL
1000 ANDREWS UNIV
1018 AQUINAS COLLEGE
1049 BAY DE NOC CMYTY COLL
1074 BLODGETT MEMORIAL HOSP
3254 BRONSON METH HOSP
1044 BUTTERWORTH HOSPITAL
1095 CALVIN COL
1035 CENTR CREATIVE STDS
1106 CENTRL MICHIGAN UNIV
1225 CHARLES S MOTT C C
1123 CLEARLY COLLEGE
1094 CONCORD COLLEGE MI
1183 DAVENPORT C BUS GRDP
7235 DAVENPORT CL-LANSING
1816 DELTA COL
1181 DETROIT CL BUS DBRBN
1370 DETROIT INST TECH
1201 EASTERN MICHIGAN UNV
1222 FERRIS STATE COL
1246 GENERAL MOTORS INST
1261 GLEN OAKS CMYTY COLL
1250 GOGEBIC CMYTY COLL
1253 GRAND RAPIDS BAPT C
1254 GRAND RAPIDS JR COL
1258 GRAND VALLEY ST COLL
1293 HENRY FORD CMYTY COLL
3177 HENRY FORD HOSPITAL
1294 HIGHLAND PARK C C
1295 HILLSDALE COLLEGE
1092 HOPE COLLEGE
3234 HURLEY MEDICAL CTR
1340 JACKSON CMYTY COLL
1601 JOHN WESLEY C OWOSSO
1092 JORDAN COLLEGE
1365 KALAMAZOO COL
1578 KALAMAZOO VALLEY C C
1375 KELLOGG CMYTY COLL
1376 KENDALL SCH O DESIGN
1382 KIRTLAND COMM COL
1137 LAKE MICHIGAN COL
1421 LAKE SUPERIOR ST COLL
1414 LANSING COMM COLLEGE
1399 LAWRENCE INST TECH
1425 LEWIS BUS CMYTY COLL
1522 MACOMB CC MT CLVIN
1722 MACOMB C C WARREN
1437 MADONNA COLL
1452 MARYGROVE COLLEGE
1460 MERCY COLL DETROIT
1516 MICH CHRISTIAN COLL
1465 MICHIGAN STATE UNIV
1464 MICHIGAN TECH UNIV
1523 MID MICHIGAN COL
1514 MONROE CO CMYTY COLL
1522 MONTCALM CMYTY COLL
1527 MUSKEGON BUS COL
1495 MUSKEGON CMYTY COLL
1559 NAZARETH C KALAMAZOO
1569 NORTH CNTRL MICH COL
1560 NORTHERN MICHIGAN UNV
1568 NORTHWOOD INST MI
1564 NORTHWESTERN MICH COL
1607 OAKLAND C C BLMED HL
1497 OAKLAND UNIVERSITY
1595 OLIVET COLLEGE
1672 REFORMED BIBLE COL
1686 SACRED HEART SEM
1766 SAGINAW VLY ST COLL
1764 SCHOOLCRAFT COL
1789 SHAW COLL DETROIT
1719 SENA HEIGHTS COLLEGE
1738 SOUTHWESTERN MICH COLL
1732 SPRING ARBOR COL
1628 ST CLAIR CO CMYTY COLL
1753 ST MARYS COLLEGE MI
1743 SUOMI COLL
1835 UNIV DETROIT

1861 UNIV MICH DEARBORN
1941 UNIV MICHIGAN ANN AR
1853 UNIV MICHIGAN FLINT
1935 WASHTENAW CMYTY COLL
1937 WAYNE CO CMYTY COLL
1898 WAYNE STATE UNIV
1941 WEST SHORE CMYTY COLL
1902 WESTERN MICH UNIV
1167 WILLIAM TYNDALE COLL

MINNESOTA

3183 ALEXANDRIA AR VO TEC
6024 ANOKA RASSEY C C
6275 ARROWHEAD CC HIBBING
6309 ARROWHEAD CC ITASCA
6432 ARROWHEAD CC MESABE
6194 ARROWHEAD CC VERMIL
6014 AUGSBURG COL
6017 AUSTIN CMYTY COLL MN
6676 BEMIDJI ST UNIV
6035 BETHANY LUTHERAN COL
6108 BETHEL COLLEGE
6040 BRAINARD CMYTY COLL
6081 CARLETON COL
6104 COLL OF ST BENEDICT
6105 COLL ST CATHERINE
6107 COLL ST SCHOLASTICA
6108 COLL ST TERESA
6110 COLL ST THOMAS
6113 CONCORDIA COLL MOORHEAD
6114 CONCORDIA COL STPAUL
6137 CROSBY SEMINARY C C
6435 DR MARTIN LUTHER COL
6256 GOLDEN VILY LULL C
6253 GUSTAVUS ADOLPHUS C
6055 HAMLINE UNIV
6314 INVER HILLS ST JR C
6388 LAKEWOOD CMYTY COLL
6390 MACALESTER COLLEGE
6977 MANKATO ST UNIV
6434 METROPOLITAN C C
6411 MINNEAPOLIS C ART DS
6412 MINNESOTA BIBLE COL
6798 MOORHEAD STATE UNIV
6501 NORMAN COLLEGE
6498 NORTH HENNEPIN C C
6500 NORTHLAND CMYTY COLL
6516 NORTHWESTRN COLL CHIR
6498 NORTHWESTRN COLL MN
6087 ROCHESTER CMYTY COLL
6703 SOUTHWEST STATE UNIV
6707 ST CLOUD SCH NURSING
6679 ST CLOUD ST UNIV
6524 ST JOHNS UNIV MN
6702 ST MARYS COLL MN
6631 ST MARYS JR COLL
6638 ST OLAF COL
6639 ST PAUL BIBLE COL
6899 UNIV MINN TECH COL
6873 UNIV MINNESOTA DULUTH
6890 UNIV MINNESOTA MORRS
6874 UNIV MINNESOTA MPLS
6893 UNIV MINN TECH
6940 WILLMAR COLLEGE
6945 WINONA ST UNIV
6965 WORTHINGTON CMYTY COLL

MISSISSIPPI

1008 ALCORN ST UNIV
1051 BELHAVEN COL
1066 BLUE MOUNTAIN COLL
1122 CLARKE COLLEGE MS
1126 COAHOMA JR COLL
1132 COPIAH JR COLN JR C
1163 DELTA ST COLL
1196 EAST CNTRL JR COLL
1197 EAST MISSISSIPPI JC
1226 HINDS JR COLL
1396 HOLMES JR COLL
1328 ITAWAMBA JR COLL
1341 JACKSON ST UNIV
1347 JONES CO JR COLL
1450 MARY HOLMES COLLEGE
1461 MERIDIAN JR COLL
1471 MILLISAPS COLL
1477 MISS COLL
1742 MISS DELTA JR COLL
1354 MISS GLF CST JR GAUT
1353 MISS GLF CST JR GULF
1623 MISS GLF CST JR PERK
1478 MISS INDUSTRIAL COLL
1480 MISS STATE
1481 MISS UNIV WOMEN
1482 MISS VALLEY ST UNIV
1557 NORTHEAST MISS JR C
1562 NORTHWEST MISS JR C
1622 PEARL RIVER JR COLL
1629 PRENTISS NORML/INDUS
1669 RUST COLL
1781 SOUTHESTRN BAPT COLL
1729 SOUTHWESTERN JR COLL
1807 TOUGALOO JR COLL
1840 UNIV MISSISSIPPI
1479 UNIV STHRN MISS
1898 UTICA JR COLL
1923 WESLEY COLLEGE
1907 WILLIAM CAREY COLL
1924 WOOD JR COLL

MISSOURI		6877	U NEBRASKA LINCOLN	2736	RUTGERS U SCH ARTS	3301	CULINARY INST AMER
6109	AVILA COLL	6896	U NEBRASKA MED CTR	2742	RUTGERS U UNIV C CAM	2113	UNIV—GRAD CENTER
6331	CAIYARY BIBLE COLL	6865	UNION COLL NE	2777	RUTGERS U UNIV C N B	2762	DAEMEN COLLEGE
6628	CARDINAL GLENNON COLL	6420	UNIV NEBRASKA OMAHA	2753	RUTGERS U UNIV C NWK	2190	DOMINICAN COLLEGE
6143	CARDINAL NEWMAN COLL	6469	WAYNE ST COLL	2789	RUTGERS-COLL NURSING	2011	DOWLING COLL
6384	CENTRAL MATH & COLL	6957	WESTERN NE TECH COLL	2512	RUTGERS-NEWARK GAS	2198	DUTCHESS CMY COLL
6085	CENTRL BIBLE COLL	6984	YORK COLL NE	2727	SAINT BARNABAS MED C	2197	DYVOUILLE COLL
6145	CENTRL CHRSTN C BIBL			2868	SALEM CMY COLL	2224	EASTMAN SCHOOL OF MU
6090	CENTRAL MISSOURI ST U		NEVADA	2811	SETON HALL UNIV	2997	EINSTEIN COLL MEDICIN
6095	COLUMBIA COLLEGE	4136	CLARK CO CMY COLL	2867	SOMERSET CO COLL	2246	EISENHOWER COLLEGE
6112	CONCEPTION SEM COLL	4235	DEEP SPRINGS COLL	2862	SOMERSET CO TECH INS	2231	ELIZABETH SETON COLL
6120	COTTEY COLL	4293	NORTHERN NEVADA C C	2875	ST FRANCIS CMH CTR	2216	ELITE HOSPITAL
6138	CROWDER COLL	4580	OLD COLLEGE	2858	ST FRANCIS MED C TRN	2226	ELMIRA COLL
6123	CULVER STOCKTON COLL	4861	UNIV NEVADA LAS VEGA	2877	ST PETERS COLL	2215	ERIE C C CITY CAMP
6167	DRIERY COLL	4844	UNIV NEVADA RENO	2819	ST PETERS MEDICL CTR	2228	ERIE C C NORTH CAMP
6198	EVANGEL COLL			2711	STOCKTON STATE COLL	2211	ERIE C C SOUTH CAMPS
6166	FONTBONNE COLL			2889	SUSSEX CO COMM COLL	2303	EUGENIO M DEHOST C C
6241	GATEWAY CLG EVANGELISM		NEW HAMPSHIRE	2748	THOMAS A EDISON STATE	2257	FASHION INST TECH
6246	HANDBILL LAGRANGE C	3793	CATHOLIC MED CR EAST	2519	THOMAS STATE COLL	2246	FIVE TOWNS COLLEGE
6261	HARRIS-STOWE ST COLL	3281	COLBY-SAWYER COLL	2941	UNION CO TECH INST	2269	FLUSHING HOSP S NURS
6320	JEFFERSON COLLEGE	3304	CONCORD HOSP SCH NUR	2921	UNION UNIV CITY COLLEGE	2259	FORDHAM UNIV
6329	JEWISH HOSP ST LOUIS	3648	DANIEL WEBSTER COLL	2930	UPSALA COLLEGE	2248	FRIENDS WORLD COLL
6330	KANSAS CITY ART INST	3351	DARTMOUTH COLLEGE	2914	US M A PREP SCHOOL	2272	FULTON-MONTGOMERY CC
6338	KEMPER MILITARY SCH C	3395	FRANKLIN PIERCE COLL	2979	WESTMINSTER CHOR C	2286	HAMILTON COLL
6366	LINCOLN UNIV MO	3452	HESSER COLL	2518	WILLIAM PATERN C NJ	2295	HARLEM HSP CTR PHYSIC
6367	LINDENWOOD COLLS	3472	KEENE STATE COLLEGE			2311	HARRIMAN COLLEGE
6359	LONGVIEW CMY COLL	3562	MAGDALEN COLL			2288	HARTWICK COLL
6406	MAPLE WOODS CMY COLL	3553	MCMINTOSH COLLEGE			2290	HEBREW UNION COLL
6399	MARYVILLE ST LOU	3553	N H VOC TEC C BERLIN	4116		2290	HEBREW UNIV STDS
6323	MINERAL AREA COLL	3684	N H VOC TEC C CLAREM	4676	COLLEGE OF SANTA FE	2316	HERMIDER CO CMY COLL
6322	MISSOURI STIRN ST C	3660	N H VOC TEC C MANCHIS	4299	EASTERN NM UNIV COL	2295	HILBERT COLL
6413	MISSOURI VALLEY ST C	3643	N H VOC TEC C NASHUA	4662	EASTERN NM UNIV ROSWL	2304	HOBART COLL
6414	MOBERLY AREA JUNIOR	3677	NATHANIEL HAWTHORN C	4532	NEW MEX HIGHLANDS UN	2294	HOFSTRA UNIV
6483	NORTHEAST MO ST UNIV	3657	NEW ENGLAND COLLEGE	4533	NEW MEX INST MET TEC	2398	HOLY THIRTY ORTHODX S
6488	NORTHWEST MO ST UNIV	3649	NEW HAMPSHIRE COLL	4533	NEW MEX JR COLL	2327	HOUGHINGTON COLLEGE
6574	PARK COLLEGE	3661	NEW HAMPSHIRE TEC IN	4534	NEW MEX MILITARY INS	2300	HUGHINGTON COL HIGHTON
6584	PENNY VALLEY CMY COLL	3670	NEW HAMPSH VTC-PORT	4012	NEW MEX ST U ALAMAG	2300	HUDSON VLY CMY COLL
6612	RESEARCH COLL NRSG	3670	NOTRE DAME COLL NH	4029	NEW MEX UNIV CARL	2301	HUNTER COLL
6611	ROCKHURST COLL	3690	PLYMOUTH ST COLL	4531	NEW MEX ST UNIV U PK	2324	IONA COLL
6713	SCHOOL OZARKS	3728	RIVIER COLL	4732	SAN JUAN COLLEGE	2325	ITHACA COLLEGE
6640	SOUTHEAST MO ST UNIV	3748	ST ANSELM COLLEGE	4737	ST JOHNS COLLEGE	2331	ITRI TORAH RESCH IN
6664	SOUTHWEST BAPTIST UN	3892	THOMAS MORE INST L A	4068	UNIV ALBUQUERQUE	2346	JAMESTOWN BUS COLL
6665	SOUTHWEST MO ST UNIV	3918	UNIV NEW HAMPSHIRE	4845	UNIV OF NEW MEXICO	2345	JAMESTOWN CMY COLL
6225	ST LOUIS CC FLOR VLY		NEW JERSEY	4535	WESTERN NEW MEX UNIV	2333	JEFFERSON CMY NY
6226	ST LOUIS CC PORT ST	2009	ASSUMPTION COLL SIST			2339	JEWISH HSP & MED CTR
6430	ST LOUIS CC MERRIMEC	7033	ATL CITY SCHOOL XRAY	2001	ACADEMY AERONAUTICS	2115	JOHN JAY C CRM INST
6626	ST LOUIS COLL PHAR	2174	ATLANTIC CMY COLL	2003	ADDELPHI UNIV	2340	JUILLARD SCHOOL
6627	ST LOUIS CONS MUSIC	2028	BA YONNE HOSPITAL	2017	ADIRONDACK CMY COLL	2355	JUNIOR COLLEGE ALBANY
6629	ST MARYS UNIV CATH	2018	BERGEN CMY COLL	2013	ALBANY BUSNESS COLL	2350	KATHARINE GIBBS S NY
6636	ST MARYS SEM COLL	2051	BERKELEY SCHOOL	2015	ALBANY MEDICAL CNTR	2352	KEUKA COLLEGE
6691	ST PAULS COLL	2044	BLOOMFIELD COLL	2005	ALFRED UNIVERSITY	2358	KINGS COLLEGE NY
6709	STATE FAIR CMY COLL	2181	BROOKDALE CMY COLL	2035	AMERICA AD DMTC ART	2366	KINGSBOROUGH C C
6583	STEPHENS COLLEGE	2180	BURLINGTON CO COLL	2037	BENOT-ODGEN MEM HOSP	2395	LABORATORY INST MDSG
6816	THOMAS COLLEGE	2072	CALDWELL COLL	2038	BERNARD COLL	2396	LEHMAN AMERICAN INST
6830	THREE RIVERS C C	2121	CAMDEN CO COLL	2038	BARNARD COLL	2367	LE MOYNE COLL
6836	TRENTON JRNY COLL	2080	CENTENARY COLLEGE	2034	BERKELEY SCHOOL NY	2377	LONG BEACH UNIV HSP
6875	UNIV MISSOURI COLLEGE	2686	CHARLS E GREGORY SCH	2034	BERNARD COLLEGE	2395	LONG ISLAND U BROOKL
6876	UNIV MISSOURI ROLLA	2107	CHRIST HOSPITAL	2031	BETH ISRAEL MED CTR	2395	MANHATTAN COLLEGE
6889	UNIV MISSOURI ST LOUIS	2090	CLARA MASS MEM HOSP	2063	BORO MANHATTN CC-CUNY	2396	MANHATTAN SCH MUSIC
6929	WASHINGTON TON	2124	COUNTY COLL MORRIS	2051	BORON CMY COLL	2397	MANNES COLLEGE MUSIC
6933	WEBSTER COLLEGE	2118	CUMBERLAND CO COLL	2046	BROOKLYN COLL	2434	MARIA REGINA COLL
6937	WEST OREGON MIL ACAD	2191	DON BOSCH COLL	2046	BROOKLYN COLLEGE	2400	MARIST COLL
6941	WESTMINSTER COLLEGE	2232	DREW UNIV	2058	BUFFALO GENERAL HOSP	2405	MARYMOUNT COLLEGE
6944	WILLIAM JEWELL COLL	2239	EDWARD WILLIAMS COLL	2060	C W POST CENTER LIU	2405	MARYMOUNT MANHATTN COLL
	WILLIAM WOODS COLL	2232	ELIZABETH GEN H DISP	2154	C W FINGER LAKES	2436	MATER DEI COLL
		2237	ENGLEWOOD HOSP ASSOC	2070	CANISUS COLL	2422	MEDAC EVERS COLL
		2237	ESSEX CO COLL	2073	CAYUGA CO CMY COLL	2443	MEMORIAL HOSP SC RAD
4227	BUTTE VOC TECH CENTR	2262	FAIRLEIGH DINKNS MADIS	2010	CAZENOVIA COLL	2472	MEMORIAL HOSPITAL
4041	CARROLL COLLEGE	2265	FAIRLEIGH DINKNS RUTH	2078	CITY COLL BUS INST	2472	MERCY COLL
4058	COLL GREAT FALLS	2253	FAIRLEIGH DINKNS WAYN	2061	CLARKSON COLL	2212	MISER MEMORIAL HOSP
4280	DAWSON C C	2321	FELICIAN COLLEGE	2083	CLINTON CMY COLL NY	2456	MILLARD FULLMORE HSP
4298	EASTRN MONTANA COLL	2321	GEORGIAN COURT COLL	2135	COLGATE COLLEGE	2451	MOHAWK VALLEY C C
4317	FLATHEAD VALLEY C C	2515	GLASSBORO ST COLL	2276	COLGATE COLLEGE	2414	MOLLOY COLL
4081	MILES CMY COLL	2381	HELENE FLUD MED CNTR	2112	COLUMBIA U	2429	MONTROE CMY COLL
4487	MONTANA C MIN SCI TE	2310	HELENE FLUD SCH NURS	2088	COLUMBIA U DENTL HYG	2423	MOUNT SAINT MARY COLL
4488	MONTANA STATE UNIV	2654	HOLY NAME HOSPITAL	2089	COLUMBIA U GSAS	2455	MOUNT VERNON HOSPITL
4538	NORTHERN MONTANA COLL	2904	HUDSON CO CMY COLL	2091	COLUMBIA U JOURNLSM	2563	NASSAU CMY COLL
4660	ROCKY MOUNTAIN COLL	2291	IMMACULATES HOSP SEM	2778	COLUMBIA U LIBRARIER	2511	NAZARETH C OF ROCHES
4689	UNIV MONTANA	2352	JERSEY CITY ST COLL	2110	COLUMBIA U PHYS & SURG	2571	NEW SCH OF THE ARTS
4945	WESTERN MONTANA COLL	2516	JERSEY SHORE MED CTR	2174	COLUMBIA U SCH GEN ST	2550	NEW YORK CITY TECH C
		2268	KEAN COLL N J	2174	COLUMBIA U SCH ENGR	2563	NEW YORK INST TECH
6053	BELLEVUE COLL	2441	MERCER CO COLL	2183	COLUMBIA U SCH ENGR	2562	NEW YORK UNIV—GSAS
6098	BRYAN MEMORIAL HOSP	2442	MERCER MEDICAL CENTR	2162	COLUMBIA U SCH ENGR	2599	NEW YORK UNIV—LAW
6136	CENTRAL COMMUNITY COLL	2416	MIDDLESEX CO COLL NJ	2120	COLUMBIA U PHYS & SURG	2568	NIAGARA CO CMY COLL
6584	CENTRL CMY C PLATTE	2520	MONMOUTH STATE COLL	2183	COLUMBIA U SCH GEN ST	2558	NORTH COLLEGE NY
6466	CHADRON ST COLL	2520	MONTCLAIR STATE COLL	2183	COLUMBIA U SCH GEN ST	2560	NYACK COLL
6417	COLL ST MARY	2520	MOUNTAINEER HOSPITAL	2111	COLUMBIA U SCH ENGR	2627	ORANODAGA CMY COLL
6116	CONCORDIA TCHRS C NE	2427	MULLENBURG HOSP NURS	2142	COLUMBIA U SCH ENGR	2628	ORANGE CO CMY COLL
6121	CREIGHTON UNIVERSITY	2513	NEW JERSEY INST TECH	2183	COLUMBIA U SCH ENGR	2629	OUR LADY OF THE LAKE
6157	DANA COLL	2560	NORTHEASTERN B C	2111	COLUMBIA U SCH ENGR	2635	PACE UNIV PLNTLV BRCLF
6165	DOANE COLLEGE	2596	OCEAN CO COLL	2142	COLUMBIA U SCH ENGR	2638	PARSONS SCH DESIGN
6246	ORANGE COLLEGE BIBLE	2629	ORANGE MEMORIAL HOSP	2183	COLUMBIA U SCH ENGR	2640	PATR SMITHS C ART SC
6270	HASTINGS COLL	2631	OUR LADY LOURDES SCH	2111	COLUMBIA U SCH ENGR	2640	POLYTECHNIC INST NY BRK
6276	KEARNEY STATE COLLEGE	2634	PASSIAC CO CMY COLL	2142	COLUMBIA U SCH ENGR	2669	POLYTECHNIC INST NY FRM
6426	MARY LANNING MEM HSP	2719	PLAZA SCHOOL	2183	COLUMBIA U SCH ENGR	2574	PRATT-NY PHNX S DSGN
6401	MC-COOK CMY COLL	2633	PLAZA TECH INST	2183	COLUMBIA U SCH ENGR	2746	QUEENS COLLEGE NY
6510	METHUEN STATE SCH NRSG	2672	PRINCETON UNIV	2183	COLUMBIA U SCH ENGR	2747	QUEENS C SP PRG HUM
6538	METROPOLITAN TECH CM	2784	RAMAPO COLL N J	2183	COLUMBIA U SCH ENGR	2750	QUEENS COLLY NY
6497	MID PLAINS CMY COLL	2885	RIIDER COLL	2183	COLUMBIA-GREENE C		
6406	MIDLAND LUTHERAN COLL	2838	RUTGERS U C ENGINEER	2096	CONCORDIA COLLEGE NY		
6470	NEBRASKA WESTERN U	2839	RUTGERS U C PHARMACY	2097	COOPER UNION		
6473	NEBRASKA WSTRN COLL	2092	RUTGERS U CAS CAMDEN	2119	CORNELL MED SCHOOL		
6473	NORTHEAST TECH CC	2170	RUTGERS U COOK COLL	2098	CORNELL UNIV		
6408	PERU ST COLL	2192	RUTGERS U DOUGLASS C	2106	CORNING CMY COLL		
6215	SOUTHEAST C C NE	2384	RUTGERS U DUNELSTON	2109	CORNING IRVING MEM HS		
6747	STATE UNIV NEBRASKA	2765	RUTGERS U RUTGERS C	2075	CTHDL C IMMAC CNCPNT		

2766	QUEENSBOROUGH C C	5094	CAPE PEAR TECH INST	6163	LAKE REGION JR COLL	1774	STHRN ST GENL TEC-NO
2776	RABBINICAL SEM AM	5092	CARTERET TECH COLL	6428	MARY COLL	1717	TIFFIN UNIV
2757	RENNELAR POLY INST	5103	CATAWBA COLLEGE	6478	MAYVILLE ST COLL	1823	TOLEDO HOSP SCH NURS
2759	ROBERTS WESLEYAN COLL	5108	CATAWBA VLY TECH COLL	6479	MINOT STATE COLL	1825	UCIN CH CH G APL SCI
2760	ROCHESTER BUS INST	5107	CENTRAL CARB TECH COLL	6474	NORTH DAKOTA ST COLL	1829	UNIV AKRON
2778	ROCHESTER DENTAL ASST	5102	CENTRAL PIEDMONT C C	6476	NORTH DAKOTA ST S CCI	1833	UNIV CINCINNATI
2760	ROCHESTER INST TECH	5129	CHARLOTTE MEMRL HOSP	6878	UNIV N DAKOTA GRNDP	1834	UNIV DAYTON
2761	ROCKEFELLER UNIV	5101	CHOWAN COLLEGE	6905	UNIV N DAKOTA WILSTN	1135	UNIV STEUBENVILLE
2767	ROCKLAND CMYTY COLL	5134	COASTAL CAROLINA C C	6480	VALLEY CITY ST COLL	1845	UNIV TOLEDO
2771	RUSSELL SAGE C C	5135	C C OF THE ALBEMARLE			1847	URBANA COLL
2780	RUSSELL SAGE COLLEGE	5148	CRAVEN CMYTY COLL			1948	URSULINE COLL
2814	SAHAR LAWRENCE COLL	5170	DAVIDSON CO CMYTY COLL			1826	WALSH COLL
2879	SCHENECTADY CO C C	5150	DAVIDSON COLLEGE	1827	AIR FORCE INST TECH	1897	WASHINGTON TECH COLL
2835	SCHOOL VISUAL ARTS	5179	DAVIS HOSP SCH NURS	1017	ANTIOCH COLLEGE	1892	WAYNE GEN TECH COLL
2868	SCHWARTZ COLL PHRMCY	5174	DUKE U ALIED HLTH	1002	ART ACADEMY CINCINATI	1906	WILBERFORCE UNIV
2814	SIENA COLL	5173	DUKE U TALENT ID PRJ	1021	ASHLAND COLL	1909	WILMINGTON COLL OH
2837	SISTERS CHARITY HOSP	5156	DUKE UNIVERSITY	1203	ALTAMAN HOSPITAL	1922	WITTENBERG UNIV
2815	SKIDMORE COLL	5162	DURHAM COLL	1050	BALDWIN WALLACE COLL	1947	WRIGHT ST UNIV CELNA
2853	SOUTHAMPTON COLL IJU	5172	DURHAM TECH INST	1072	BELMONT TECH COLL	1179	WRIGHT STATE U DAYTN
2794	ST BONAVENTURE UNIV	5180	EAST CAROLINA UNIV	3239	BETHESDA HOSPITAL	1965	WAGNER UNIVERSITY
2796	ST ELIZABETH HOSP	5199	EDGECOMBE TECH COLL	1048	BLISS COLLEGE	1975	YOUNGSTOWN ST UNIV
2631	ST FRANCIS COLL NY	5629	ELIZABETH CITY ST U	1067	BLUFFTON COLL		
2651	ST JAMES MERCY HOSP	5183	ELON COLLEGE	1067	BORROROME COLLEGE OH		
2698	ST JOHN FISHER COLL	5212	FAYETTEVILLE ST UNV	1069	BOWLING GREEN ST U		
2834	ST JOHNS RIVERSIDE HSP	5208	FAYETTEVILLE TECH IN	1099	CAPITAL UNIV		
2799	ST JOHNS UNV JAMCA	5234	FORSYTH TECH INST	1151	CASE WESTERN RES		
2845	ST JOHNS UNV STA IS	5242	GARDNER WEBB COLLEGE	1107	CEDARVILLE STATE UNV OH		
2802	ST JOSEPHS C BRACUN	5262	GASTON COLLEGE	1140	CHATEAU COLL		
2802	ST JOSEPHS C PITCHEUR	5260	GREENSBORO COLLEGE	1233	CHRIST HOSPITAL		
2825	ST JOSEPHS H SYRACUS	5261	GULFPORT COLL	1191	CINCINNATI BIBLE SEM		
2808	ST JOSEPHS HOS ELIMRA	5275	GULFPORT TECH INST	1984	CINCINNATI TECH COLL		
2845	ST LAWRENCE UNIV	5301	HAILFARGER HOSP	1088	CIRCLEVILLE BIB COLL		
2857	ST MARYS HOSPITAL	5289	HAYWOOD TECH COLLEGE	1127	CLARK TECHNICAL COLL		
2834	ST THOMAS AQUINAS C	5288	HERITAGE UNIVERSITY	1152	CLEVELAND INST ART		
2807	ST VINCENTS HOSP NYC	5293	HIGH POINT COLL	1284	CLEVELAND INST MUSIC		
2749	ST VINCENTS MED C SI	5319	ISOTHERMAL CMYTY COLL	1129	CLEVELAND STATE UNIV		
2840	SUFOLK CO CC CRENTI	5350	JAMES SPENT TECH CL	1221	COL MT ST JOSEPH		
2857	SUFOLK CO CC RIVIER	5348	JOHN WESLEY COLL	1134	COLLEGE OF WOOSTER		
2857	SUFOLK CO CC SELDEN	5333	JOHNSON C SMITH UNV	1148	COLUMBUS TECH INST		
2855	SULLIVAN CO CMYTY COLL	5351	JOHNSON TECH COLL	1978	COOPER SCH ART		
2524	SUNY AGT COBLESKILL	5361	KINGS COLL CHARLOTTE	1979	CUYAHOCA C C EASTERN		
2525	SUNY AGT TEC-DELHI	5356	KINGS COLLEGE RAIGH	1985	CUYAHOCA C C WESTERN		
2522	SUNY AGT TEC C ALFED	5364	LESACRE COLL	1162	DEFANCE COLL		
2526	SUNY AGR TEC C CANTN	5378	LENOIR CMYTY COLL	1168	DEMISON UNIV		
2523	SUNY AGR TEC C FARMG	5375	LENOIR MEMORIAL HOSP	1174	DYKE COLL		
2527	SUNY AGR TEC C MORRIS	5365	LENOIR RHINE COLL	1176	EDGECIFF C XAVIER U		
2537	SUNY AT ALBANY	5369	LIVINGSTONE COLL	1519	EDSON STATE CMYTY C		
2537	SUNY COLL BROCKPORT	5391	LOUISBURG COLLEGE	1219	ELYRIA MEMO HOSP		
2538	SUNY COLL CORTLAND	5395	MANNA CHRISTIAN COLL	1219	FAIRVIEW GENERAL HSP		
2535	SUNY COLL ENVTL SCI	5445	MARS HILL COLL	1223	FINDLAY COLL		
2549	SUNY COLL FREDONIA	5434	MARTIN COMMUNITY COL	1289	FRANKLIN STATE UNV		
2541	SUNY COLL GENESSEO	5410	MERCY SCH NURSING	1238	GODS BIBLE COLLEGE		
2541	SUNY COLL NEW PALTZ	5426	MEREDITH COLL	1259	GOOD SAMARITAN HOSP		
2866	SUNY COLL O WESTBURY	5412	MITCHELL CMYTY COLL	1292	HEIDELBERG COLL		
2542	SUNY COLL ONEONTA	5423	MONTREAT ANDERSON C	1287	HIRAM COLL		
2544	SUNY COLL PLATTSBURG	5425	MOUNTAIN OLYVE COLL	1268	HOCKING TECH COLL		
2540	SUNY COLL POTSDAM	5003	NORTH CAR AGR ST U	1342	HOLZER MEDICAL CNTR		
2878	SUNY COLL PURCHASE	5495	NORTH CAR CENTRAL UNV	1342	HURON ROAD HOSPITAL		
2533	SUNY COLLEGE BOWFEGO	5512	NORTH CAR SCH ARTS	1328	JEWISH HOSPITAL		
2535	SUNY CTR BINGHAMTON	5496	NORTH CAR SCH RAIGH	1340	JOHN CARROLL UNV		
2535	SUNY CTR BUFFALO	5501	NORTH CAR WESLYN COLL	1347	KENT STATE UNV		
2548	SUNY CTR STONY BROOK	5533	PEACE COLL	1370	KENYON COLL		
2534	SUNY DOWNST MED CTR	5534	PEMBROKE STATE UNV	1391	LARI ERIC COLL		
2214	SUNY EMPIRE ST COLL	5536	PIEDMONT BIBLE COLL	1370	LAKELAND CMYTY COLL		
2534	SUNY HLTH SC C STNYB	5535	PIEDMONT TECH COLL	1421	LIMA TECH CLG OSU		
2536	SUNY MARITIME COLL	5518	PIEDMONT COMMUNITY COL	1421	LOREAN CO CMYTY COLL		
2547	SUNY UPSTATE MED CTR	5556	PIT COMMUNITY COLL	1422	LOURDES COLL		
2840	SYRACUSE UNIV PRJ AD	5544	PRESBYTERIAN HOSP	1423	LUTHERAN MED CTR		
2823	SYRACUSE UNIVERSITY	5560	QUEENS N Y COLL	1439	MAJONE COLL		
2755	TECHNICAL CAREER INS	5585	RANDOLPH TECH COLL	1444	MARIETTA COLLEGE		
2013	TOBE-COBBURN SCH FASH	5588	RICHMOND TECH COLL	1546	MARION TECHNICAL COLL		
2044	TOMPKINS CORTLAND CC	5597	ROANOKE BIBLE COLL	1520	MERCY SCH NURSING		
2902	TOURO COLL	5564	ROANOKE CHOWAN UNV	1528	MIAMI UNIV HAMILTON		
2514	TRAPHAAGEN SCH FASH	5582	ROCKINGHAM CMYTY COLL	1509	MIAMI UNIV MIDDLETN		
2856	TROCAIRE COLL	5589	ROWAN TECHNICAL COLL	1563	MIAMI UNIV OXFORD		
2938	ULSTER CO CMYTY COLL	5595	SACRED HEART COLLEGE	1603	MICH J OWENS TECH UNV		
2920	UNION COLL NY	5607	SALEM COLL NC	1543	MOUNT AUGUSTINE NOV		
2950	UNV APPLTCH PKGS CN	5661	SANPOWELL TECH COLL	1502	MOUNT UNION COLLEGE		
2922	UNV ROCHESTER	5649	SANDHILLS TECH COLL	1531	MOUNT VERNON NAZRN C		
2923	US MERCHANT MARINE ACAD	5612	SHAW UNV	1592	MUT CARMEL HOSPITAL		
2924	US MILITARY ACADEMY	5651	SOUTHERSTN CC NC	1536	MUSKINGUM AREA TCH C		
2932	UTICA COLL SYRACUSE U	5667	SOUTHWESTERN TECH COLL	1545	MUSKINGUM COLLEGE		
2956	USSAR COLL	5614	ST ANDREWS PRESBY C	1575	NO CENTRAL TECH COLL		
2963	VILLA MARIA COLL NY	5596	ST AUGUSTINES COLL	1235	NORTHWEST TECH COLL		
2965	WADHAMS HALL SEM COLL	5600	ST MARYS COLL NC	1260	NORTHWESTRN BUS COLL		
2966	WAGNER COLL	5656	SURRY CMYTY COLL	1566	NOTRE DAME COLL OH		
2970	WEBB INST NAVAL ARCH	5790	TECHNICAL C ALAMANCE	1587	OBERLIN COLLEGE		
2971	WELLS COLL	5785	TRI CO COLLEGE	1589	OHIO COLL PODIATRIC MED		
2972	WESTCHESTER CMYTY COLL	5013	UNC ASHEVILLE	1131	OHIO DOMINICAN COLL		
2978	WILLIAM SMITH COLL	5013	UNC AT GREENSBORO	1151	OHIO NORTHERN UNV		
3258	WOOD SCHOOL	5105	UNV N CAROLINA CHAR	1592	OHIO STATE UNV		
2900	YESHIVA UNV	5816	UNV NTH CAROLINA WILM	1593	OHIO UNIV		
2992	YORK COLL NY	5885	UNV OF NC AT C H	1611	OHIO VALLEY HOSPITAL		
		5885	WAKE FOREST UNIV	1594	OHIO WESLEYAN UNV		
		5928	WAKE TECHNICAL COLL	1597	OTTERBEIN COLL		
		5886	WARREN WILSON COLL	1643	PONT COLL JOSEPHINUM		
		5915	WATTS HOSPITAL	1660	RABBINICAL C TELSHE		
		5926	WAYNE CMYTY COLL	1568	RO GRANDE COLLEGE		
		5897	WESTERN CAROLINA UNV	1790	SHAWNEE STATE C C		
		5921	WESTERN PIEDMONT C C	1730	SINCLAIR CMYTY COLL		
		5921	WIKES CMYTY COLL	1754	SOUTHERN OHIO COLLEGE		
		5923	WILLIAM CARTER COLL	3576	SOUTHERN OHIO COLLEGE		
		5930	WILSON CO TECH INST	1191	SOUTHERN ST COMM COLL		
		5908	WINGATE COLL	1695	ST ALEXIS HOSPITAL		
		5909	WINSTON SALEM ST U	1752	ST VINCENT ST VINCENT		
				3241	ST VINCENT HOSP TOLE		
				1688	STARK TECH COLL		
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2431 ALIVERNA COLLEGE
2029 ART INSTITUTE PITTSB
2036 BAPTIST BIBLE COLLEGE
2039 BEAVER COLLEGE
2046 BLOOMSBURG ST COLL
2131 BRANDYWINE SCH NRSNG
2049 BRYN MAWR COLLEGE
2059 BRYN MAWR HOSPITAL
2050 BUCKNELL COLLEGE
2066 BUCKS CO CMY COL
2069 BUTLER CO CMY C PA
2025 C C ALLEGHENY CO NPIT
2156 C C ALLEGHENY CO PIT
2125 C C ALLEGHENY CO WMF
2120 C C CREEVER COL
2071 CABRINI COLL
2067 CALIF ST COLL PA
2421 CARLOW COLLEGE
2074 CARNEGIE MELLON UNV
2122 C C ALLEGHENY CO MONRO
2079 CEDAR CREST COLL
2081 CHATHAM COLL
2120 CHESTER CO HOSP NURS
2182 CHESTNUT HILL COLL
2180 CHESTNUT HILL HOSP
2648 CHEVNEY STATE COLL
2132 CITIZENS GENERAL HSP
2649 CLARION ST COLL
2182 CMY GNRL HOSP RAD T
2140 CMY MEDICAL CENTER
2087 COLL MISERCORDIA
0086 COLLEGE BOARD
2150 COMBS COLL MUSIC
2682 COMM COLL OF PHILA
2128 CONEMAUGH VLY MEM HS
2125 DELAWARE CO COMM COL
2510 DELAWARE V C AGGR
2186 DICKINSON COLL
2194 DREXEL UNV
2201 DUFFS BUS INST
2194 DUQUESNE UNIVERSITY
2650 EAST STROUDSBURG S C
2020 EASTERN COLLEGE
2051 EDINBORO ST COLL
2225 ELIZABETHTOWN COLL
2104 EPHRATA HOSPITAL
2215 ERIE BUSINESS CTR
2247 FRANKFORD HOSPITAL
2261 FRANKLIN & MARSHALL
2276 HANSON UNV
2282 GEISINGER MED CTR
2273 GENEVA COLLEGE
2285 GERMANVTN DISP HOSP
2275 GETTYSBURG COLL
2286 GRATZ COLL
2287 GROVE CITY COLL
2276 GWYNEDD MERCY COLL
2308 HARCUM UNV HEALTH
2287 HARRISBURG AREA C C
2289 HAVERTFORD COLLEGE
2315 HAZLETON ST GEN HOSP
2297 HOLY FAMILY COLL
2320 IMMACULATE COLL
2052 INDIANA UNV OF PENNA
2732 INST COMPUTER SCIENC
2329 IVY SCHOOL PROF ART
2337 JAMESON MEMORIAL HOSP
2341 JUNIATA COLLEGE
2351 KEYSTONE JR COLL
2353 KINGS COLL PA
2053 KUTZTOWN ST COLL
2379 LA ROCHE COLLEGE
2363 LA SALLE COLLEGE
2373 LACKAWANNA JR COLL
2361 LAFAYETTE COLLEGE
2398 LANCASTER BIBLE COLL
2396 LANCASTER GENRL HOSP
2375 LANKEANU HOSPITAL
2364 LEBANON VALLEY COLL
2181 LEHIGH CO CMY COL
2385 LEHIGH UNV
2741 LINCOLN TECH INST
2367 LINCOLN UNV PA
2054 LOCK HAVEN ST COLL
2382 LUZERNE CO CMY COL
2372 LYCOMING COLL
2474 MANNA BIBLE INST
2260 MANOR JR COLLEGE
2055 MANFIELD ST COLL
2473 MARYWOOD UNV
2473 MEMORIAL HOSP ROXBORO
2446 MERCY HOSPITAL
2447 MERCY HOSPITL PITTSBG
2457 MERCY HOSPITL SCRANTN
2441 MERCYTHURST HOSP
2411 MESSIAH COLLEGE
2458 METHODIST HOSPITAL
2056 MILLERSVILLE ST COLL
2445 MONTGOMERY CO C C
2417 MOORE COLLEGE OF ART
2418 MORAVIAN COLL
2266 MOUNT ST JOSEPH HOSP
2420 MT ALOYSIUS JR COLL
2424 MUEHLBERG COLL
2028 NEUMANN COLLEGE
2577 NEW CASTLE BUS COLL
2573 NORTHAMPTON CO AR CC
2567 NORTHEASTN CHRSTN JN
2576 NORTHEASTN HOSPITAL
2024 OHIO VLY GENRL HOSP

2674 PEIRCE JR COLL
2643 PENN COLL OPTOMETRY
2675 PENN INST OF TECH
2705 PENN ST U COLL MED
2660 PENN STATE UNV U PK
2665 PHILA C PERFRMG ARTS
2664 PHILA COL ART
2661 PHILA COLL BIBLE
2663 PHILA COLL PHAR SCI
2666 PHILA COLL TEX SCI
2687 PHILLESBURG JN COLLEGE
2718 PINEBROOK JR COLLEGE
2684 PITTSBURG HOSPITAL
2676 POINT PARK COLLEGE
2693 POTTSVILLE HOSPITAL
2679 PRESBYTERIAN COLLEGE
2743 READING AREA C C
2772 READING HOSPITAL
2769 ROBERT MORRIS COLL PA
2658 ROBERT PETER HOSP
2763 ROSEMONT COLL
2812 SETON HILL COLL
2863 SEWICKLEY VALLEY HOSP
2836 SHARPENED HOSPITAL
2870 SHARON GENERAL HOSP
2657 SHIPPENSBURG ST COLL
2658 SLIPPERY ROCK ST COLL
2817 SPURRING GARDEN COLL
2886 ST AGNES MEDICAL CTR
2794 ST CHARLS BORROMEO S
2797 ST FRANCIS COLL PA
2876 ST FRANCIS GEN PITTS
2874 ST FRANCIS HOSP NCTL
2872 ST JOSEPH HOSP LANC
2873 ST JOSEPHS HOSP READ
2873 ST JOSEPHS UNV
2852 ST LUKES HOSPITAL
2872 ST MARGARET MEM HOSP
2808 ST VINCENT COLL
2833 ST VINCENT HLTH CTR
2820 SQUEHANNA UNV
2821 SWARTHMORE COLLEGE
2806 TEMPLE UNIVERSITY
2910 THIEL COLL
2903 THOMAS JEFFERSON UNV
2023 U PENN--ANNENBERG
2945 U PENN--WHARTON SCH
2942 UNIONTOWN HOSP S NUR
2222 UNITED WESLEYAN COLL
2926 UNV PENN
2986 UNV PENN C GENRL ST
2944 UNV PENN DENT MED
2936 UNV PIT GREENSBURG
2940 UNV PITTSBGH GNSTD
2934 UNV PITTSBGH JOHNS
2927 UNV PITTSBGH JOHN
2937 UNV PITTSBGH TITUS
2935 UNV PITTSBURGH BRAD
2929 UNV SCRANTON
2931 URSINUS COLL
2573 VALLEY Forge CHRSTN
2955 VALLEY FORGE MILT JC
2957 VILLA MARIA COLL PA
2661 VILLA MARIA HOUS STD
2955 VILLANOVA UNIVERSITY
2973 WASHINGTON HOSPITAL
2967 WASHINGTON JEFFRSON C
2969 WAYNESBURG COLL
2659 WEST CHESTER ST COLL
2983 WESTERN PENN HOSPITL
2975 WESTMINSTER COLL PA
2968 WESTMORELAND CO C C
3257 WHEELER SCHOOL
2642 WIDENER COLL
2677 WILKES COLL
2980 WILLIAMSPORT AREA CC
2981 WILLIAMSPORT HOSPITL
2979 WILSON COLL
2991 YORK COLL PENN

PUERTO RICO

0840 BAYAMON CENTRAL UNV
0779 CARIBBEAN UNV COLL
0910 CATHOLIC UNV P R
0780 COLEGIO UNV TURABO
0873 INTER AMERCN U SAN G
0946 INTER AMERCN U SAN G
0034 INTRNATL CHRSTN UNV
0883 PUERTO RICO JR COLL
0836 U PR PONCE TECH U CL
0983 UNV OF PUERTO RICO
0915 UNV OF SACRED HEART
0911 UNV PURTO RICO AREC
0852 UNV PURTO RICO BAYM
0981 UNV PURTO RICO GAYE
0874 UNV PURTO RICO HENR
0912 UNV PURTO RICO MAYA
0979 UNV PURTO RICO RIOF

RHODE ISLAND

3692 BARRINGTON COLL
3094 BROWN UNIVERSITY
3095 BRYANT COLLEGE
3733 CMY COL RHODE IS
2965 JOHNSON & WALES COLL
3466 KATHARINE GIBBS S RI
3642 NEWPORT HOSPITAL
3693 PROVIDENCE COLL
3724 RHODE ISLAND COLL
3726 RI SCHOOL OF DESIGN

3720 ROGER WILLIAMS COLL
3750 SAVERIO RAL NEWPORT C
7438 ST JOSEPH HSP CYTOTC
3797 ST JOSEPHS HOSPITAL
3919 UNIV RHODE ISLAND

SOUTH CAROLINA

5037 Aiken Technical Coll
5005 ALLEN UNV
5008 ANDERSON COLLEGE SC
5079 BAPTIST COLL CHARLT
5047 BEAUFORT TECH COLL
5050 BENEDICT COLLEGE SC
5065 BOB JONES UNV
5896 CENTL WESLEYAN COLL
5095 CHESTFLD MRLBRO TCOL
5286 CHICKADEE VENTNG COLL
5104 CITADEL THEO UNV
5109 CLAFIN COLL
5111 CLEMSON UNV
5743 CLINTON JR COLL
5112 COCKER COLL
5113 COLL OF CHARLESTON
5695 COLLEGE MARINE ARTS
5116 COLUMBIA BIBLE COLL
5117 COLUMBIA COLLEGE SC
5097 COLUMBIA JUNIOR COLL
5121 CONVERSE COLLEGE
5744 DENMARK TECH COLL
5188 ESKINE COLL
5207 FLORENCE D'ARNGTNG TCOL
5442 FRANCIS MARION COLL
5221 FRIENDSHIP JR COLL
5222 FURMAN UNV
5278 GREENVILLE TECH COLL
5307 HARRY GEORGTWN TCH C
5363 LANDER COLLEGE
5366 LIMESTONE COLL
5407 MEDICAL UNV S C
5552 MIDLANDS TCH C AIRPT
5584 MIDNIGHT TCH C BELTN
5418 MORRIS COLL
5493 NEWBERRY COLL
5498 NORTH GREENVILLE COLL
5527 ORANGEBURG CALHN TCOL
5525 ORANGEBURG REG HOSP
5550 PIEDMONT TECH COLL
5540 PRESBYTERIAN COLL
5618 SOUTH CAROLINA ST C
5663 SOUTHERN METHODIST C
5668 SPARTANBURG TECH COLL
5627 SPARTNBURG METHODIST C
5665 SUMMIT AREA TECH COLL
5789 TBI CO TECH COLL SC
5551 TRIDENT TCH C PALMER
5049 TRIDENT TCH CL-NORTH
5050 UNV SO CAROLINA SPAR
5840 UNV SOUTH CAROLINA
5818 UNV SOUTH CAROLINA
5837 USC COSTL CAROLIN COLL
5863 VOORHIES COLL
5802 WILLIAMSBURG TECH VO
5910 WINTROP COLLEGE
5912 WOFFORD COLL
5989 YORK TECHNICAL COLL

SOUTH DAKOTA

6015 AGUISTANA COLL SD
6042 BLACK HILLS ST COLL
6149 COMMUNITY COLLEGE
6247 DAKOTA STATE COLLEGE
6125 DAKOTA WESLEYAN UNV
6233 FREEMAN JR COLL
6279 HURON COLL
6416 MOUNT MARTY COLL
6464 NATIONAL COLLEGE
6487 NORTHERN ST COLL
6582 PRESENTATION COLLEGE
6696 RAPID CITY REGN HOSP
6651 SIOUX FALLS COLL
6652 SOUTH DAKOTA S MIN T
6653 SOUTH DAKOTA ST UNV
6881 UNV S DAKOTA VRMLN
6560 USD AT SPRINGFIELD
6983 YANKTON COLL

TENNESSEE

1028 AUSTIN PEAY ST UNV
5369 BARONSS ERLANGER HSP
1063 BELMONT COLLEGE
1068 BETHEL COLL TN
1102 BRYAN COLLEGE
1308 CARSON-NEWMAN COLL
1094 CHATTANOOGA ST TECC
1121 CHRISTIAN BROS COLL
1181 COLUMBIA ST CMY COL
6124 COVENANT COLL
1146 CUMBERLAND COLL TN
6161 DAVID LIPScomb COLL
3261 DRAUGHONS BUS COLL
1128 EAST TENN STATE UNV
1230 FISK UNV
1224 FREE WILB PA BIP C
1230 FREED-HARDAMEN COLL
1298 HIWASSEE COLL
1345 JOHNSON BIBLE COLL
1371 KING COLL
1375 KNOXVILLE COLLEGE
1373 LAMBUETH COLL
1395 LANE COLL

1401 LEE COLLEGE TN
1403 LEMOYNE OWEN COLL
1408 LINCOLN MEM UNV
1440 MARTIN COLL
1454 MARYVILLE COLL TN
1438 MEHARRY MED COLL
1511 MEMPHIS ACAD OF ARTS
1459 MEMPHIS ST UNV
1466 MIDDLE TENN ST UNV
1469 MILLIGAN COLL
1488 MORRISTOWN COLLEGE
1543 MOWAT STATE CMNTY C
1648 NASHVILLE ST TEC INS
1656 ROANE ST CMY COLLEGE
1725 SOUTHERN COLL OPTMTRY
1727 SOUTHERN MISSIONARY C
1730 SOUTHWESTERN MEMPHIS
1803 TENNESSEE STATE UNV
1804 TENNESSEE TECH UNV
1818 TENNESSEE TEMPLE U
1805 TENNESSEE WESLEYAN C
1790 TOMLINSON COLLEGE
1809 TREVCCA NAZARENE C
1812 TUSCULUM COLLEGE
1831 U T AT CHATTANOOGA
1826 UNION UNV
1842 UNIV OF THE SOUTH
1843 UNV TENNESSEE KNOX
1844 UNV TENNESSEE MEMPH
1850 UNV TENNESSEE MEMPH
1871 VANDERBILT UNV
1881 VOLUNTARIAN ST COM COL
1893 WALTERS ST C C

TEXAS

6001 ABILENE CHRSTN U ABL
6140 ABILENE CHRSTN U GAR
6005 ALVIN COMMUNITY COLL
6006 AMARILLO COMM COLLEGE
6261 AMBASSADOR COLLEGE
6756 AMERICAN TECH UNV
6025 ANGELINA COLL
6044 ANGELO STATE UNV
6239 ARLINGTON BAPTIST C
6759 AUSTIN CMY COL TX
6100 AUSTIN COLL
6068 BAUDER FASHION C TX
6032 BATLOR UNIVERSITY
6040 BISHOP COLL
6043 BLINN COLL
6050 BRACKENRIDGE HOSP
6154 BRAZOSPORT COLL
6004 BROOKHAVEN COLLEGE
6048 CEDAR VALLEY COLLEGE
6138 CENTRL TEXAS COLL
6096 CISCO JR COLL
6097 CLARENDON COLL
6135 COLL MAINLAND
6127 CONCORDIA LUTHERAN C
6245 COOKE CO COLL
6195 DALLAS BAPTIST COLL
6169 DEL MAR COLL
6179 DURHAM COLL VALLEY
6187 EAST TEXAS BAPTIST C
6206 EAST TEXAS ST U TEXA
6188 EAST TEXN STATE UNV
6201 EASTFIELD COLLEGE
6199 EL CENTRO COLL
6203 EL PASO CMY COLL TX
6212 FAITH CHRISTIAN COLL
6222 FRANK PHILIPS COLL
6255 GALESTOWN COLL
6254 GRAYSON CO COLL
6268 HARDIN SIMMONS UNV
6271 HENDERSON CO JR COLL
6285 HENR COLL
6282 HOUSTON BAPTIST UNV
6277 HOWARD COLLEGE
6278 HOWARD PARRISH UNV
6301 HUSTON TILLOTSON COLL
6303 INCARNATE WORD COLL
6317 JACONVILLE COLL
6319 JARVIS CHRISTIAN COLL
6341 KILGORE COLL
6360 LAMAR UNV
6362 LAREDO JR COLL
6365 LEE TOURNEAU COLL
6366 LEE COLL TX
6369 LON MOORE COLL
6378 LUBBOCK CHRISTIAN C
6429 MCLENNAN CMY COLL
6402 MCMURRY COLL
6459 MIDLAND COLLEGE
6408 MIDWESTERN ST UNV
6438 MOUNTAIN VIEW COLL
6465 NAVARRO COLL
6508 NORTH HARRIS CO COLL
6519 NORTH LAKE COLLEGE
6481 NORTH TEXAS ST UNV
6499 NORTHWOOD INST TX
6540 ODESSA COLLEGE
6550 OUR LADY LAKE UNV
6570 PAN AMERICAN UNV
6572 PANOLA JR COLL
6573 PARIS JR COLL
6577 PAUL GUERIN COLLEGE
6580 PRAIRIE VIEW A M U
6608 RANGER JR COLL
6609 RICE UNV
6607 RICHLAND COLL
6643 SAM HOUSTON ST UNV

6645	SAN ANTONIO COLL
6729	SAN JACINTO C NORTH
6694	SAN JACINTO COL-CENT
6691	SCHREINER COLL
6695	SOUTH PLAINS COLL
6660	SOUTHRN METHODIST UNV
6667	SOUTHWEST TX STATE U
6669	SOUTHWESTERN A-G COL
6666	SOUTHWEST TEXAS JR C
6671	SOUTHWSTN ADVENTIST C
6705	SOUTHWSTRN CHRSTN C
6674	SOUTHWSTRN UNV
6619	ST EDWARDS UNV
6637	ST MARYS UNIVERSITY
6642	ST PHILIPS COLLEGE
6682	STEPHEN F AUSTIN ST U
6681	ST JOSEPH UNV
6817	TARLETON ST UNIV
6845	TARRANT CO JR COLL NW
6834	TARRANT CO JR FTWRTH
6837	TARRANT CO JR HURST
6818	TEMPLE JR COLL
6835	TEX A&M U GALVESTON
6819	TEXARKANA CMY COL
6822	TEXAS A U UNV
6013	TEXAS A&M U COLL STA
6820	TEXAS CHRISTIAN UNIV
6821	TEXAS COLL
6823	TEXAS LUTHERAN COLL
6824	TEXAS SOUTHERN UNIV
6825	TEXAS SOUTHWEST COLL
6843	TEXAS ST TECH HARLING
6328	TEXAS ST TECH WACO
6827	TEXAS TECH UNIV
6828	TEXAS WESLEYAN COLL
6826	TEXAS WOMANS UNV
6831	TRINITY UNIV
6833	TYLER JR COLL
6870	UNIV HOUSTON CENTRAL
6916	UNIV HOUSTON CLR LKE
6917	UNIV HOUSTON VICTORA
6922	UNIV HOUSTON-DWNTN C
6396	UNIV MARY HARDIN-BAY
6917	UNIV ST THOMAS
6013	UNIV TEXAS ARLINGTON
6882	UNIV TEXAS AUSTIN
6887	UNIV TEXAS DALLAS
6829	UNIV TEXAS EL PASO
6888	UNIV TEXAS HOUSTON
6908	UNIV TEXAS HSC SAN A
6887	UNIV TEXAS MED GALVS
6919	UNIV TEXAS SAN ANTON
6913	UNIVERSITY OF DALLAS
6913	VERNON REGIONAL JR C
6915	VICTORIA COLL
6930	WAYLAND BAPTIST COLL
6931	WEATHERFORD COLL
6938	WEST TEXAS ST UNIV
6951	WESTERN TEXAS COLL
6939	WHARTON CO JR COLL
6940	WILEY COLL

UTAH

4019	BRIGHAM YOUNG U UT
4040	COL OF EASTERN UTAH
4283	DIXIE COLL
4412	LATTER DAY STS BUS C
4727	SNOW COLL
4092	SOUTHRN UTAH ST COLL
4751	STEVENS HENAGER COLL
4853	UNIVERSITY OF UTAH
4857	UTAH ST UNIV
4864	UTAH TECH CLG SLC
4870	UTAH TECH COLL PROVO
4941	WEBER ST COLL
4948	WESTMINSTER COLLEGE

VERMONT

3080	BENNINGTON COLLEGE
3296	C OF VERMONT
3765	CASTLETON ST COLL
3291	CHAMPLAIN COLL
3297	COL ST JOSEPH PROVID
3376	ETOWN ALLEN CMY COL
3416	GODDARD COLL
3418	GREEN MOUNTAIN COLL
3766	JOHNSON ST COLL
3767	LYNDON ST COLL

3509	MARLBORO COLL
3526	MIDDLEBURY COLLEGE
3546	MIDDLESEX COLLEGE
3669	NORWICH U-VERMONT C
3735	ROYALTON COLL
3796	SOUTHERN VERMONT COLL
3757	ST MICHAELS COLL
3900	TRINITY COLL VT
3920	UNIV OF VERMONT
3940	VERMONT COLL/NORWICH
3941	VERMONT TECH COLL

VIRGIN ISLANDS

0879	COLL VIRGIN ISLANDS
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VIRGINIA

5018	ALEXANDRIA HOSPITAL
5011	APPRENTICE SCH
5017	AVERTT COLLEGE
5083	BLUE RIDGE CMY COL
5063	BLUEFIELD COLL
5069	BRIDGEWATER COLL
5141	CENTRAL VIRGINIA C C
3691	CHRISTENDOM COLLEGE
5128	CHRISTOPHER NEWPORT C
5124	CLINCH VALLEY COLL
5099	CMTY HOSP ROANOKE VY
5115	COLL WILLIAM MARY
5274	COLONIAL BAPTIST CLG
5139	DABNEY LANCASTER C C
5163	DANVILLE CMY COL
5164	DE PAUL HOSP SCH NUR
5181	EASTRN NEMMONITE COL
5814	EASTRN SHORE C C
5185	EMORY & HENRY COLL
5213	FERRUM COLL
5827	GEORGE MASON UNV
5276	GERMANSIA CMY COLLEG
5291	HAMPDEN SYDNEY COL
5292	HAMPTON INST
5294	HOLLINGS COLLEGE
5340	J SARGT REYNOLDS CC
3676	J SARGT REYNOLDS CC
5392	JAMES MADISON UNV
5342	JOHN TYLER CMY COLL
5385	LIBERTY BAPTIST COLL
5308	LONGWOOD COLL
5381	LORD FAIRFAX C C
5380	LOUISE OBICI SCH NUR
5379	LYNCHBG GNTMARSHIL LD
5372	LYNCHBURG COLLEGE
5397	MARY BALDWIN COLL
5398	MARY WASHINGTON COLL
5405	MARYMOUNT COLL VA
5448	MEMORIAL HOSPITAL
5451	MOUNTAIN EMPIRE C C
5502	NATIONAL BUS COLL
5513	NEW RIVER CMY COLL
5504	NORFOLK GENERAL HOSP
5864	NORFOLK STATE UNIV
5510	NORTHRN VIRG CC ALEX
5515	NORTHRN VIRG CC ANAN
5774	NORTHRN VIRG CC MANS
5775	NORTHRN VIRG CC STER
5517	NORTHRN VIRG CC WOOD
5126	OLD DOMINION UNV
5549	PATRICK HENRY C C
5557	PAUL D CAMP C C
5547	PETERSBURG GENL HOSP
5561	PIEDMONT VIRGINIA CC
5565	RADFORD UNV
5566	RANDOLPH MACON COLL
5567	RANDOLPH MACON W COL
5590	RAPPHANNOCK CC GLNS
5574	RICHARD BLAND COLL
5576	RICHMOND MEMRL HOSP
5580	ROANKE HOSPITAL
5711	ROANOKE COLLEGE
5581	ROANOKE MEMORIAL HSP
5613	SHENANDOAH C CONS MU
5654	SMITHDEAL MASSY BU C
5625	SOUTHERN SEM JR COLL
5660	SOUTHSIDE VA CC ALBR
5669	SOUTHSIDE VA CC KEYS
5659	SOUTHWST VA CMY COL
5675	ST LUKES HOSPITAL
5608	ST PAULS COLL VA
5634	SWEET BRIAR COLL

5793	THOMAS NELSON C C
5707	TIDEWATER CC CHSAPEK
5226	TIDEWATER CC PORTSM
5787	TIDEWATER CC VA BCH
5569	UNIV RICHMOND RICH C
5817	UNIV RICHMOND WHMPTN
5820	UNIV VIRGINIA
5861	VIRGINIA COLLEGE
5570	VIRGINIA COMM U ACAD
5408	VIRGINIA COMM U HLTH
5432	VIRGINIA COMM U NURS
5927	VIRGINIA HIGHLNDS C C
5857	VIRGINIA INTMT COLL
5858	VIRGINIA MILTRY INST
5860	VIRGINIA STATE UNV
5859	VIRGINIA TECH
5861	VIRGINIA UNION UNV
5867	VIRGINIA WESLYN COLL
5868	VIRGINIA WESTRN C C
5887	WASHINGTON LEE UNV
5917	WYTHEVILLE CMY COL

WASHINGTON

4029	BELLEVUE CMY COL
4024	HIG BEND CMY COLL
4044	CENTRAL WASHINGTON U
4045	CENTRALIA COLLEGE
4042	CITY COLLEGE
4055	CLARK COLLEGE
4077	COLUMBIA BASIN C C
4301	EASTRN WASHNGTN UNV
4307	EDMONDS CMY COLL
4303	EVERETT CMY COLL
4302	EVERGREEN ST COLL
4103	FT STELLACOMM C C
4344	FT WRIGHT COLL
4330	GONZAGA UNV
4332	GRAYS HARBOR COLL
4337	GREEN RIVER C C
4348	HIGHLINE CMY COLLEG
4374	KIMMAN BUSINESS UNIV
4402	LOWELL COLUMBIA COLL
4374	LUTHERAN BIBLE INST
4554	NORTH SEATTLE C C
4541	NORTHWEST COLL
4578	OLYMPIA TECH C C
4583	OLYMPIC COLLEGE
4597	PACIFIC LUTHERAN UN
4615	PENINSULA COLL
4618	PUGET SOUND B BIBLE
4741	SEATTLE CNTRL C C
4694	SEATTLE PACIFIC UNV
4695	SEATTLE UNV
4738	SHORELINE CMY COLL
4699	SKAGIT VALLEY COLL
4759	SOUTH SEATTLE C C
4759	SPOKANE CMY COLL
4752	SPOKANE FALLS C C
4674	ST MARTINS COLLEGE
4826	TACOMA CMY COLL
4067	UNIV PUGET SOUND
4854	UNIV WASHINGTON
4963	WALLA WALLA C C
4940	WALLA WALLA COLL
4949	WASHINGTON BAPT T C
4918	WASHINGTON ST UNV
4942	WENATCHEE VALLEY COL
4947	WESTERN WASH UNV
4951	WHITMAN COLL
4953	WHITWORTH COLL
4959	YAKIMA VTY CMY COLL

WEST VIRGINIA

5005	ALDERSON BROADBUS C
5054	BECKLEY COLL
5060	BETHANY COLL WV
5064	BLUEFIELD ST COLL
5121	CONCORD COLL
5151	DAVE ELKINS COLL
5211	FAIRMONT ST COLL
5254	GLENNVILLE ST COLL
5396	MARSHALL UNV
5320	OHIO VALLEY MED CTR
5319	OHIO VILLY COLL
5932	PARKERSBURG C C
5539	POTOMAC ST COLL
5608	SALEM COLL WV

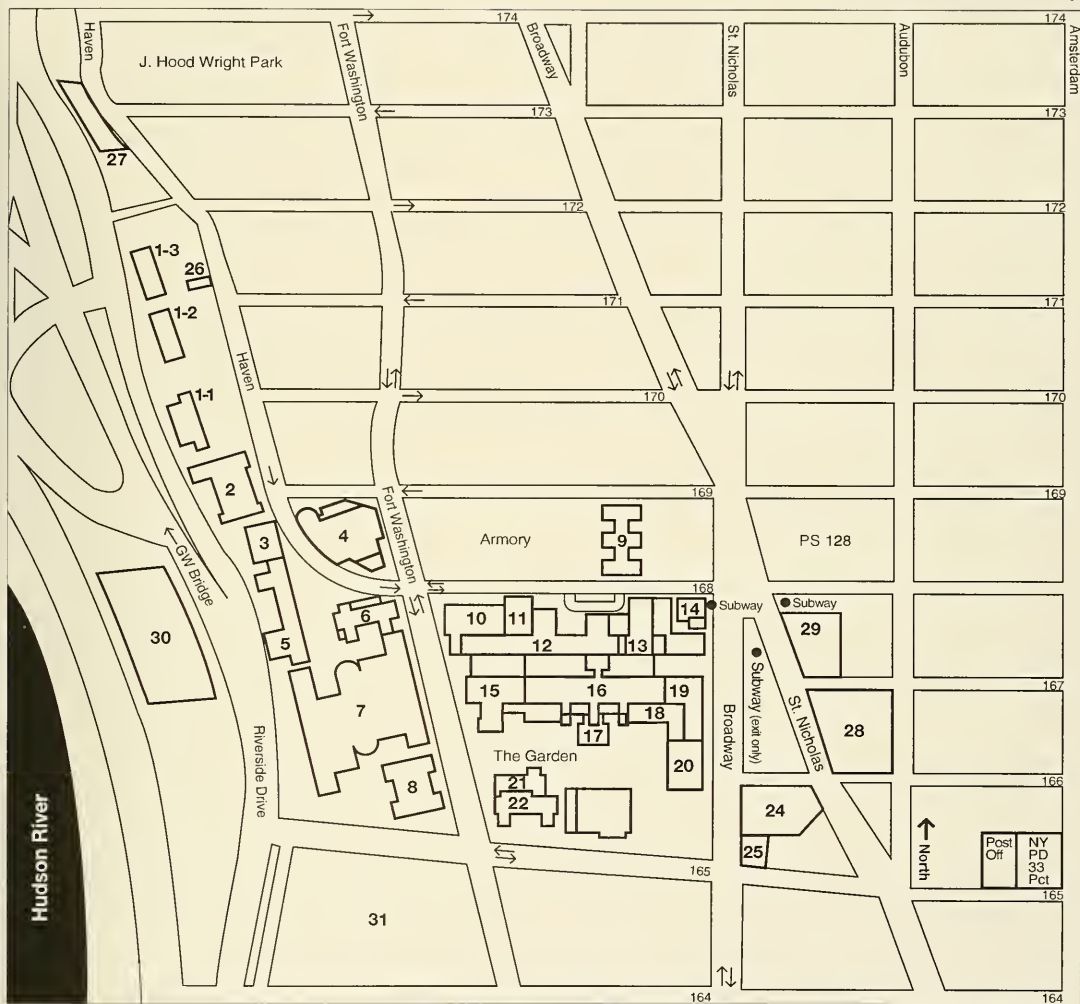
5615	SHEPHERD COLL
5419	UNV OF CHARLESTON
5903	W VA STATE COLLEGE
5901	WEST LIBERTY C COLL
5905	WEST VA WESLEYAN COL
5948	WEST VIRGINIA CAREER
5902	WEST VIRGINIA INST T
5904	WEST VIRGINIA UNV
5906	WHEELING COLLEGE
5942	WV NORTHERN CC WHEEL

WISCONSIN

1012	ALVERNO COLLEGE
1046	BELLIN MEMORIAL HOSP
1059	BELOIT COLLEGE
1100	CARDINAL STELLA CH COL
1101	CARROLL COLLEGE
1103	CARTHAGE COLL
1986	COLUMBIA HOSPITAL
1139	CONCORDIA COLLEGE WT
1202	EDGEWOOD COLLEGE
1255	GATEWAY TEC INS RACN
1289	HOLY REDEEMER COLL
1393	LARLAND COLL
1398	LAWRENCE UNV
1536	MADISON AREA TECH C
1532	MADISON GENERAL HOSP
1443	MARIAN C FOND DU LAC
1448	MARQUETTE UNV
1472	MILTON COLL
1475	MILWAUKEE A TEC MILW
1534	MILWAUKEE CO MED COM
1476	MILWAUKEE SCH ENGR
1490	MOUNT MARY COLL
1512	MOUNT SENARIO COLL
1450	NORTHEAST WISC T INS
1901	NORTHLAND COLLEGE
1563	NORTHWESTN C COLL WI
1604	RIPON COLLEGE
1300	SILVER LAKE COLL
1180	ST FRANCIS DE SALS C
1788	ST JOSEPHS HOSPITAL
1784	ST LUKES HOSPITAL
1706	ST NORBERT COLL
3617	STRATTON COLLEGE
1942	UNIV WIS FOND DU LAC
1473	UNIV WISG MILWAU
1996	UNIV WISG BARABOO
1913	UNIV WISC EAU CLAIRE
1859	UNIV WISG GREEN BAY
1998	UNIV WISG JANEVILLE
1914	UNIV WISG LA CROSSE
1846	UNIV WISC MADISON
1890	UNIV WISC MANITOWOC
1891	UNIV WISC MARINETTE
1997	UNIV WISC MARSHFIELD
1863	UNIV WISC MED SCH
1940	UNIV WISC MEFORD
1889	UNIV WISC MENASHA
1740	UNIV WISC MEMONOMIE
1916	UNIV WISC OSHKOSH
1860	UNIV WISC PARKSIDE
1917	UNIV WISC PLATTEVILLE
1772	UNIV WISC RICE LAKE
1662	UNIV WISC RICHMOND CT
1918	UNIV WISC RIVER FLS
1852	UNIV WISC SCHOOL BUS
1994	UNIV WISC SHEOBYGAN
1919	UNIV WISC STEVENS PT
1320	UNIV WISC SUPERIOR
1959	UNIV WISC WAUKESHA
1995	UNIV WISC WAUSAU
1993	UNIV WISC WEST BEND
1921	UNIV WISC WHITEWATER
1878	VITERO COLL
1087	WESTRN WISC TECH INS
1513	WISC CONSRVTRY MUSIC
	WISC LUTHERAN COLL

WYOMING

4043	CASPER COLL
4115	CENTRL WYOMING COLL
4700	EASTRN WYOMING COLL
4542	NORTHWEST CMY COL WY
4536	SHERIDAN COLLEGE
4805	UNIV WYOMING
4957	WESTRN WYOMING COLL



- 1 Bard Haven Towers 1-1, 1-2 and 1-3
(Residences/Administration)
School of Public Health Divisions: Tower 1-1
Population & Family Health, B2, B3
Environmental Health Sciences, B1
- 2 Bard Hall (Residences/Administration)
- 3 Lawrence C. Kolb Research Building
- 4 Armand Hammer Health
Sciences Center (classrooms)
Augustus C. Long Library
- 5 **The future home of The Joseph L. Mailman
School of Public Health**
- 6 The Neurological Institute of New York
- 7 The Milstein Hospital Building
- 8 The Dana W. Atchley Pavilion
- 9 Georgian Building (Residences/Administration)
School of Nursing
School of Public Health, 3rd floor
*Dean's Office, Student Services,
Career Services, Financial Aid*

- 10 William Black Medical Building
- 11 Alumni Association
- 12 College of Physicians & Surgeons
- 13 Vanderbilt Clinic
School of Dental and Oral Surgery
- 14 NYC Health Department
School of Public Health Divisions:
Sociomedical Sciences, 7th floor
Health Policy & Management, 6th floor
General Public Health, 6th floor
Executive MPH, 6th floor
- 15 The Harkness Pavilion
- 16 Presbyterian Hospital (Learning Center)
School of Public Health Divisions:
Biostatistics, 18th floor
Epidemiology, 18th floor
Pauline A. Hartford Memorial Chapel
- 17 Radiotherapy Center
- 19 Babies and Children's Hospital Building,
North

- 20 Babies and Children's Hospital Building,
South
- 21 Sloane Hospital for Women
- 22 Eye Institute Research Laboratories
- 23 Edward S. Harkness Eye Institute
- 24 Service Building
Mary Woodard Lasker
Biomedical Research Building
Barnes & Noble Bookstore
- 25 Audubon NYC Building
- 26 106 Haven (Residences)
- 27 154 Haven (Residences/Administration)
National Center for Children in Poverty
Staff Parking
- 28 Russ Berrie Medical Science Pavilion
- 29 The NY State Psychiatric Institute
- 31 Visitor Parking
- Subway Station (168th Street)
IRT: 1 & 9 Local (7th Avenue)
IND: A Express, B Local



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